

REPORT DOCUMENTATION PAGE

May 1995

Final 07/94 - 07/95

Case Management: An Evaluation of Psychiatric Case Management at Naval Medical Center Portsmouth, Virginia

Commander David R. Whiting, NC,USN

Naval Medical Center
Portsmouth, Virginia 23708-6135

32-95

US Army Medical Department Center and School
BLDG 2841 HSHA MH US Army - Baylor University Grad PGM
In HCA
3151 Scott Road
Fort Sam Houston, TX 78234-6135

DTIC QUALITY INSPECTED 2

Approved for Public Release; Distribution is Unlimited

Prior to institution of the Continuity of Psychiatric Care (CPC) case management program at NMCP, comprehensive coordinated psychiatric case management was not provided. Disjointed care resulted in high readmission rates within the CPC targeted population and expenditure of unnecessary funds on inpatient care. The addition of the CPC program has lowered the number of readmission occupied bed days (OBD) for its target population through case management. This has made less expensive beds available at NMCP for patients that might have been referred to civilian institutions at higher cost. The Medical Boards process significantly impacts on the readmission rates of CPC clients by extending the time they are retained on active duty. If the time to complete Medical Boards is reduced from the current average of 133 days to 60 days in conjunction with staff funding and expansion of the CPC program to cover a larger target population that includes all Physical Evaluation Medical Boards, the potential exists for significant cost savings. If further research supports this study, fully funding CPC staff billets (currently un-funded) and stream-lining the Medical Boards process by discontinuing the intra-departmental part of that process, and expanded case management services is recommended.

14. SUBJECT TERMS

Psychiatric Case Management

15. NUMBER OF PAGES

119

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT

N/A

18. SECURITY CLASSIFICATION OF THIS PAGE

N/A

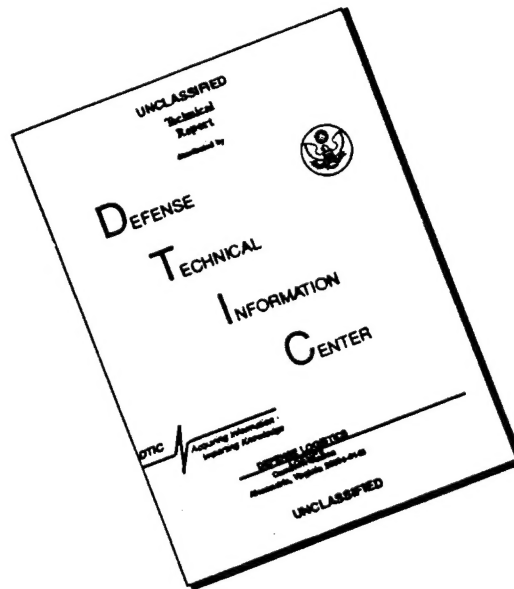
19. SECURITY CLASSIFICATION OF ABSTRACT

N/A

20. LIMITATION OF ABSTRACT

UL

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

5000
02
22 May 1995

FIRST ENDORSEMENT ON CDR DAVID R. WHITING, NC, USN GRADUATE
MANAGEMENT PROJECT OF MAY 15, 1995

From: Captain L. G. Seible, MSC, USN, Director for
Administration, Naval Medical Center, Portsmouth,
Virginia 23708-5100

To: Commandant, Academy of Health Sciences, U.S. Army Baylor
Program in Health Administration
ATTN: HSHA-MH (Rene L. Pryor), Fort Sam Houston, Texas
78234-6100

Subj: GRADUATE MANAGEMENT PROJECT

1. Forwarded recommending approval and acceptance.
2. The applied graduate management project completed by
Commander Whiting enables the staff of the Medical Center to
evaluate case management as an effective tool to better utilize
limited healthcare resources under current austere conditions.


L. G. SEIBLE

U.S. ARMY - BAYLOR UNIVERSITY
GRADUATE PROGRAM IN HEALTH CARE ADMINISTRATION

CASE MANAGEMENT: AN EVALUATION
OF PSYCHIATRIC CASE MANAGEMENT
AT NAVAL MEDICAL CENTER PORTSMOUTH, VIRGINIA

A GRADUATE MANAGEMENT PROJECT
PRESENTED TO

L.G. SEIBLE
CAPT, MSC, USN
PRECEPTOR

P.F. O'CONNOR
LCDR, MSC, USN
FACULTY READER

IN PARTIAL FULFILLMENT OF CANDIDACY REQUIREMENTS FOR
THE MASTER OF SCIENCE DEGREE IN
HEALTH CARE ADMINISTRATION

BY

DAVID R. WHITING
CDR, NC, USN

NAVAL MEDICAL CENTER
PORTSMOUTH, VIRGINIA

MAY 22, 1995

19960911 039

ACKNOWLEDGEMENTS

During the past two years, the path of my life has carried me through graduate school at the U. S. Army-Baylor University Program in Health Care Administration. This experience has been one of the defining moments in my life. While the journey at times has been tumultuous, it has non-the-less been a gratifying experience that has well prepared me to face future challenges in the delivery of quality health care services that are accessible to all at an affordable price.

As I look toward graduation in August, I reflect back on the entire experience and realize that many people influenced me toward accomplishment of this endeavor. My parents, Al and Clyde are the foundation of my ability to set and attain goals and objectives. My seven brothers and sisters Al, Van, Tim, Gay, Anne, Kay, and Becky are productive and vital citizens and have each in their own way shown me what hard work and perseverance can accomplish.

The Baylor faculty, individually and collectively provided timely and insightful guidance. Special thanks to my faculty advisor, Lieutenant Commander Peter O'Connor. He has always been accessible providing timely and appropriate counselling. My preceptor, Captain Larry Seible gave me the freedom to pursue my academic interest. His insights and experience proved invaluable.

Completion of my Graduate Management Project would not have been possible without the help and guidance of Commander Shelagh Rivera. As program coordinator for the Continuity of Psychiatric Program, her input was essential. She along with HM₃ Dawn McDonald and HM₃ Jeff Nowlin the case managers for CPC, are primarily responsible for the success of psychiatric case management at Naval Medical Center Portsmouth.

Josh Bronson in the Health Benefits office, Carol Mitchell in the Medical Boards Section, Evelyn Weiss in the Resources Department, and the entire Medical Library staff will forever have my gratitude. These are true professionals and each in their own areas of expertise provided me with essential data and guidance for my Graduate Management Project.

My fellow resident Lieutenant Paul Marcinko was always there for consultation and moral support. Lieutenant Commander Paul Hoffman provided counsel and advice on accomplishment of my GMP.

ABSTRACT

Expenditures for health care services delivery are decreasing. As a result, Naval Medical Center Portsmouth (NMCP), Virginia must explore ways to more effectively and efficiently provide quality services that are accessible to its beneficiaries at an affordable cost. One cost containment strategy is case management.

This case study was conducted through review and analysis of documents both internal and external to NMCP. These documents included operating procedures, instructions, memoranda, letters, and published literature. Also included were numerous interviews of NMCP staff that provided data either directly or indirectly related to psychiatric case management.

Prior to institution of the Continuity of Psychiatric Care (CPC) program, comprehensive coordinated psychiatric case management was not provided at NMCP. Disjointed care resulted in high readmission rates within the CPC targeted population and expenditure of unnecessary funds on inpatient care.

The addition of the CPC program has lowered the number of readmission OBDs for its target population through case management. This has made less expensive beds available at NMCP for patients that might have been referred to civilian institutions at higher cost.

The Medical Boards process for Physical Evaluation Boards (PEB) impacts on the readmission rates of CPC clients by significantly extending the time they are retained on active duty. If the time to complete the Medical Boards process is reduced from the current average of 133 days to less than 60 days in conjunction with staff funding and expansion of the CPC program to cover a larger target population that includes all PEB patients, the potential exists for significant cost savings.

The results of this research are based on findings and data in the initial year of the CPC program. Further research to substantiate findings in this study is required to fully determine the effectiveness, efficiency, and quality of this program over a longer period of time.

If further research supports the findings of this study, consideration should be given to adding funded CPC billets to the existing Psychiatric Department staff, discontinuing the intra-departmental psychiatric Medical Boards process, and expanding the scope of CPC services to manage a larger target population and help expedite PEBs.

TABLE OF CONTENTS

Chapter

1. INTRODUCTION.....	1
Background	1
Problem Statement	7
Literature Review	9
Purpose	17
2. METHODS AND PROCEDURES.....	18
3. RESULTS.....	23
4. DISCUSSION.....	29
5. CONCLUSIONS AND RECOMMENDATIONS.....	40
6. APPENDICES	
A. UNITED STATES POPULATION GROWTH RATE.....	45
B. NMC PORTSMOUTH DESCRIPTION AND ORGANIZATION	
CHART/PSYCHIATRIC DEPARTMENT DESCRIPTION	
AND ORGANIZATION CHART.....	48
C. NMC PORTSMOUTH INPATIENT ADMISSIONS AND	
OCCUPIED BED DAY RATES.....	56
D. NMC PORTSMOUTH PSYCHIATRIC DEPARTMENT ALOS	
AND PERCENTAGE OCCUPANCY RATES.....	62
E. NMC PORTSMOUTH PSYCHIATRIC DEPARTMENT	
SUPPLEMENTAL CARE FUNDS.....	71
F. NMC PORTSMOUTH PSYCHIATRIC DEPARTMENT	
READMISSION DATA.....	74

G. MEDICAL BOARDS PROCESS.....	83
H. CONTINUITY OF PSYCHIATRIC CARE PROGRAM	
READMISSIONS.....	93
I. POTENTIAL OBDS SAVED WITH CASE MANAGEMENT..	107
J. COST BENEFIT ANALYSIS OF CPC PROGRAM.....	110
7. BIBLIOGRAPHY.....	115

CASE MANAGEMENT: AN EVALUATION
OF PSYCHIATRIC CASE MANAGEMENT
AT NAVAL MEDICAL CENTER PORTSMOUTH, VIRGINIA

CHAPTER 1
INTRODUCTION

Background

The United States spends more than \$820 billion on health care annually. This is 14% of the GNP or approximately \$8,000 annually per family. If current government policies remain in force, national health spending will reach 18% of the GNP by the year 2000 or almost \$1.7 trillion. There are obvious concerns about the impact of this unchecked spending growth on consumers, businesses, and governments (Southby 1993; Pratt 1992).

Health care costs are paid for largely by individuals and or various forms of third party payers. These payers have a vested interest in keeping health care costs down. Consequently, they are not hesitant to demand every benefit that medicine can provide at the lowest cost. Therefore, resource consumption and utilization of medical services by health care providers is under increased scrutiny by payers (Pratt 1992).

Given this increased scrutiny, economic incentives

compounded by changes in technology and population demographics have altered health care delivery patterns. New equipment, restructuring of billing and payment strategies, lower lengths of hospital stay, an older population (Appendix A), larger numbers of chronically ill patients, and alternative sites for care are but a few of the elements contributing to dramatic changes within the health care system (Bower 1991; Kongstvedt 1993; Warrick 1990).

Many of the aforementioned factors have caused beneficial changes. However, there is continual consumer dissatisfaction with the health care delivery system. Customers are appalled by limited access to care, rising costs, a system too complex to understand, and fragmentation of services. Providers of care are just as frustrated by a sharp rise in the acuity and complexity of patient care episodes. Institutions in the health care infrastructure are pressured by the demands and unique needs of numerous constituencies. Concurrently, payers have to respond to their shareholders' demands for quality care at a lower cost as employers and government agencies react to the rising portions of their funds that are spent on health care costs (Bower 1991; Lanier and Boone 1993).

These economic, technical, and social factors compound pressures that have been placed on the Department of Defense's (DoD) health care system to lower costs. The DoD is in the middle of tempestuous times both domestically and abroad. Unanticipated changes have occurred on the political landscape

during the past 5 years. The dissolution of the Soviet threat has lead to improved relationships with numerous nations that were previously our adversaries. Adding to this pressure is the center piece of the 1992 political election, health care reform. The democrats under Bill Clinton have promised to re-structure the health care system to provide universal access and maintain quality service at an affordable price. All of these factors mean there will be less health care dollars available than anticipated (Ekholm 1993; Southby 1993).

The DoD health care network is enormous and must adjust to the reality of shrinking financial resources. The DoD health care system consists of an active workforce of 200,000 military and civilian workers with a reserve component made up of an additional 200,000 personnel. Its component parts are made up of 148 hospitals, 554 medical clinics, over 300 dental clinics, hundreds of medical activities, and the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Nine million beneficiaries are served by the system. DoD expenditures on health care activities are approximately 5.6% of the DoD budget exceeding \$15 billion in fiscal year 1993 (Lanier and Boone 1993; Southby 1993).

The logical response to contemporary domestic and geopolitical changes has been to decrease defense spending. Military health care as part of the DoD will not escape cuts. "Innovation" must be the battle cry for the military health care system. Increased costs, tight budgets, and a 25% reduction in

force proposed by Congress with only a 9% decrease in beneficiaries requires creative management of limited resources (Southby 1993; Lanier and Boone 1993).

Within the military health care system, resource consumption levels and workload information are the traditional methods used by the DoD to determine annual funding for particular health care institutions. During the fiscal year, this funding base is often modified to take into account planned program changes such as the expansion or cutting back of services. However, under current economic and political conditions this method of funding may result in skewed workload reporting and lead to operational inefficiencies when resources are limited (Hoffman 1994).

The gap between real and projected requirements in DoD health care facility budgets becomes a huge problem under the pressures created by decreasing resources. Historically, hospital Commanders were under no particular pressure to conserve resources or manage services economically. More money was always available. Now however, austere fiscal conditions alter the playing field. The reality of limited resources leaves little margin for error because there are no funds to fall back on (Lanier and Boone 1993).

Consequently, the basis for funding is being pushed away from a resource consumption and workload based funding system toward a capitation based methodology (Hoffman 1994). Under capitation, a prospective payment for services on a per capita basis is given to an institution to manage the health care needs

of its constituency (Kongstvedt 1993).

In reality this means that the Commander of a military medical center is responsible for delivering health care benefits to a specific population for a set amount of dollars per beneficiary. Under such a system, the Commander is encouraged to deliver care in the most cost effective setting, use preventive services, effectively manage each episode of care, and carefully monitor the volume of provided services (Hoffman 1994).

In effect, facility Commanders receiving prospective reimbursement are unable to influence the amount of money received retrospectively to make up for short falls caused by mismanagement. Consequently, Commanders must manage the health care needs of their populations effectively and efficiently within the constraints of finite resources based on a capitated rate.

Naval Medical Center Portsmouth (NMCP), Virginia is a major medical facility in the DoD health care system. It provides a wide range of comprehensive inpatient and outpatient medical services to active duty members of the Uniformed Services. In addition, under Title 10 of the U. S. Code, the NMCP provides the maximum range and amount of comprehensive health care services possible for other authorized beneficiaries on a space and resource available basis (U. S. Congress, 1991).

Naval Medical Center Portsmouth is the lead agent institution for Region 2. As head of the lead agent medical facility, the NMCP Commander is responsible for optimizing the

use of all direct care assets in 8 military treatment facilities in Virginia and North Carolina. Of 870,000 total beneficiaries in this region, approximately 450,000 reside in the Tidewater area. NMCP provides 1,500,000 inpatient and outpatient visits annually. The average daily census of the inpatient acute care facility is 200 (Hoffman 1994).

The NMCP budget was in excess of \$137 million for fiscal year 1993 and approximately \$160 million for fiscal year 1994. In real dollars, the increase in funding of \$23 million dollars represents a decrease in actual patient care dollars. Contract and supply costs have increased and public works centers have consolidated. This has resulted in increased support costs to NMCP (Hoffman 1994). Given the economic and geopolitical pressures discussed earlier, this decrease in actual patient care dollars will continue into the foreseeable future.

In response to the decrease of actual patient care dollars, case management is a viable tool available to the NMCP Commander in the struggle to control costs and improve the quality and access to care. Case management is defined as a process that evaluates a patient's progress within the health care system. It ensures that treatment is appropriate and provided in a cost-effective and timely manner. Pre-established milestones and outcomes are used to evaluate care (Bachrach 1992).

Case management programs are proving themselves to be successful in reducing length of stay and costs for treating patients in the private sector. Hospitals report lowering

expenditures by as much as 15-20 percent the first year such programs are implemented. Most of these institutions also report increased patient satisfaction (Baschon 1992). By directing the further development of a coordinated case management program under the umbrella of managed care at NMCP, the Commander will be better prepared to manage patient care with less funding as would be dictated under a capitated reimbursement system.

Problem Statement

The mental health case management program at NMCP is called the Continuity of Psychiatric Care (CPC) program. The intent of the CPC program is to provide comprehensive inpatient and outpatient psychiatric support as needed for persons with serious, disabling mental illness inpatient care (Rivera 1994, 1995).

A chief aim of the program is to avoid extended inpatient hospitalization or readmission of clients awaiting separation from the military. Prolonged inpatient stays or readmissions during the Medical Board process which can exceed 120 days are unacceptable for both clinical and fiscal reasons (Rivera 1994, 1995).

Clinically, psychiatric patients are adversely effected when their return to a normal social environment is delayed. From a fiscal standpoint, an inpatient bed occupied by a patient awaiting military separation denies facility access to acutely

ill patients coming into the system (Rivera 1994, 1995, Dietzen and Bond 1993). This increases the potential that NMCP must use supplemental funds to send clients to civilian facilities. The cost of sending a patient to a civilian institution for treatment is an extra avoidable expense. Given the state of shrinking patient care dollars, this is not the wisest use of resources.

Since its inception in 1994, the CPC program has not been analyzed systematically to evaluate its fiscal efficiency and effectiveness. No official analysis of its impact on the use of occupied bed days and consequent use of expenditures has been done. In addition, the effects of the Medical Board process as it relates to prolonged retention on active duty of psychiatric patients awaiting disposition while in the CPC program has not been aggressively investigated.

In spite of the prolonged active duty status caused by the Medical Board process for psychiatric patients in Medical Holding Company, speculation is that the CPC has effectively lowered the number of occupied bed days (OBDs) for inpatients due to readmissions and saved money (Rivera 1994). The potential exists that cost savings may be greater if the Medical Boards process for CPC clients can be completed in less than 60 days. However, hard data must be compiled and analyzed to substantiate this assumption.

If this hypothesis can be affirmed, fully funding CPC program billets in conjunction with a restructuring of the Medical Board process may be of benefit to the Command.

Literature Review

The American health care system is in a state of profound change. The rate of change is nearly exponential, or at least seems to be. Health care costs are escalating at an alarming rate as a result of many causes including:

1. Rapidly developing technology.
2. Cost shifting by providers to defray the cost for care given to patients who either cannot pay or are covered by systems that do not pay the full costs of care.
3. Changing demographics as the population ages.
4. High expectations for an extended and healthy life.
5. The current legal environment and its direct effect on the practice of defensive medicine.
6. Administrative costs related to delivered care.
7. Wide differences in efficiencies and quality of care that is delivered by all kinds of providers.
8. Serious inequities in levels of income among all types of providers (Kongstvedt 1993; Sandhu et al 1992; Sowell 1994; Quinn 1993).

The changing climate within the health care system has made it necessary to explore innovative strategies to provide quality-based cost-effective care. Cost, quality, and efficiency are key issues. Communication and coordination are a crucial if these issues are to be linked in such a way that allows modern health care institutions to survive (Robinson, Robinson, and Lewis 1992;

Lanier and Boone 1993; Ehreth 1993; Birmingham 1994; Schlackman 1991).

Hospitals survive if they are effective at what they do. All organizations must do this if they are to prosper (Ehreth 1993). The business of delivering health care in the nation, in the DoD, and in the Tidewater area has changed. Money is in short supply and will be shorter in the future. A finite amount of money is available to fund a vast amount of needed services. "sacred cows" used in the past are no longer adequate justification for expenditures.

In this time of economic austerity, corporate downsizing, and keen competition, the DoD health care system is being severely tested. A direct challenge facing military health care managers is how to best organize resources to give timely access to quality care and achieve economic efficiency (Lanier and Boone 1993; Southby 1993; Schlackman 1991).

Case management is a viable approach available to administrators and clinicians that addresses the issues of decreasing budgets and improving the quality and access to care. It is a process of health assessment, planning, and service procurement as well as care delivery, coordination, and monitoring to meet the many needs of clients (Mayer, Madden, and Lawrenz 1990; Cunningham 1994; Birmingham 1994; Cesta 1993).

From a historical perspective, the idea of case management has its roots in case nursing which dates back to the early 19th century. At that time nurses took care of patients in their

homes. In the 1960s, district nurses and social workers in the United Kingdom were in charge of case management. Psychiatric nurses and social workers practiced case management in the United States in the 1970s (Sandhu et al 1992).

During the 1980s, many factors influenced the implementation and development of case management. The principal factor was a push to reduce the cost of health care services through cost effectiveness and proper and effective use of resources (Sandhu et al 1992).

In 1981, the Omnibus Budget Reconciliation Act and Medicare prospective reimbursement had a direct impact on acute care hospitals. These initiatives encouraged community-based alternatives to institutional placement giving acute care facilities an important financial incentive to reduce patient length of stays (Bower 1991).

Consequently, hospitals became more competitive. Prospective payments for care have driven down acute care length of stays. Marketing strategies to attract clients have become more intense because of declining hospital censuses (Sandhu et al 1992; Kongstvedt 1993).

Under these conditions, case management as a means to conserve resources makes good sense. It pushes patient care toward the most desirable patient, family, and institutional outcomes: clinical effectiveness; financial efficiency; and patient satisfaction (Cunningham 1994; Sowell and Meadows 1994). As a result, approximately half of U. S. hospitals have switched

to or are thinking about switching to some form of case management (Sandhu et al 1992).

The goals of case management vary from institution to institution. Depending whether the setting is inpatient or outpatient or both, program goals may include:

1. Coordinate patient care through professional collaboration.
2. Identify and achieve client outcomes.
3. Promote client, nurse, and physician satisfaction through coordination and continuity of care.
4. Promote efficient nursing care.
5. Facilitate utilization and resources and decrease length of stay (Kongstvedt 1993; Cunningham 1994; Birmingham 1994).

Based on these goals, case management programs are built on several essential elements. These critical elements are:

1. Casefinding - referral and pre-screening.
2. Assessment - of needs and resources.
3. Problem identification and planning - for specific problems based on critical pathways.
4. Implementation - service coordination, delivery, and reimbursement.
5. Monitoring - documentation and evaluation.
6. Reassessment - feedback and total quality improvement (Birmingham 1994; Quinn 1993; Robinson, Robinson, and Lewis 1992; Bower 1991).

The principle coordinator in case management programs are case managers. The majority are nurses who are employed by organizations or work independently with specific groups of patients (Birmingham 1994; Cohen 1991).

Nurses bring broad-based and distinctive skills and knowledge to case management. The role of nurses as coordinators of care has been fundamental to defining nursing practice for decades. The coordination of services and care is the principle function of case managers. This role is a legitimate expansion of the nursing role because case management seeks to attend to the total needs and concerns presented by patients and their families (Bower 1991).

Ordinarily, case managers are not direct care providers. It is their role to guide episodes of care rather than focus on isolated aspects of care. Case managers maintain an overview of the entire treatment process while in consultation with direct and indirect care givers (Birmingham 1994; Cohen 1991; Mayer, Madden, and Lawrenz 1990; Clark and Fox 1993; Bower 1991).

Nurse case managers focus on assisting and facilitating patients as they adapt to the potential or actual effects of health issues on daily activities. From a holistic viewpoint, nurse case managers practice with extensive knowledge of the multi-dimensional issues presented by patients and their families, while including the doctor and psychosocial factors (Birmingham 1994; Cohen 1991; Mayer, Madden, and Lawrenz 1990; Clark and Fox 1993; Bower 1991).

Case managers work in a variety of client settings. They provide service for some of the following situations:

1. Acutely ill patients in such medical specialties as oncology, mental health, neonatology, pediatrics, and high risk obstetrics.
2. Patients with head injury, spinal cord injury, AIDS, or other catastrophic illnesses.
3. General medical or surgical patients who are hospitalized and considered to be at risk for delay in discharge for various reasons.
4. Ill or injured workers who are unable to work in their traditional role.
5. Elderly individuals who need assistance to remain in the community.
6. Disabled clients who need services from multiple agencies to maintain a level of independence (Birmingham 1994; Quinn 1993; Kongstvedt 1993; Peterson 1991; Bower 1991).

Case managers work in many different types of management models. They can be characterized according to specific common goals and methods. The literature identifies five general case management designs: the expanded-broker; personal-strength; rehabilitation; full support; and managed care (Clark and Fox 1993; Applebaum 1990; Sandhu et al 1994).

The expanded-broker model makes case managers responsible for assessing patient's needs and linking them to existing services. However, this model does not normally provide direct

treatment services. On the other hand, case managers in the personal-strength model identify client's abilities and create situations in which patients can use those abilities to gain personal goals. The case manager attains goals largely by helping the patient gain access to resources such as vocational training, housing, social services, and medical care (Clark and Fox 1993, Applebaum 1990).

Rehabilitation models are directed toward identifying physical and or mental deficits and teaching clients the skills they need to overcome those deficits. Similar to the personal-strengths model, the rehabilitation model stresses the patient's goals and needs rather than those of the health care system. In the full-support model case managers act both as providers of direct care and as directors of brokers of other services that their clients receive. In addition to providing clinical services, case managers in the full-support system offer a wide range of other supports, such as money management and access to housing (Clark and Fox 1993).

In the managed care model, providers are at risk for costs that exceed a prepaid amount and can create a surplus if costs are kept below the capitation amounts the agency receives. This puts pressure on the care planning process creating incentives for the provider to control total expenditures, to promote and provide preventive services, and to substitute less expensive services wherever possible without sacrificing quality or under serving patients (Applebaum 1990).

Although most case management models stress treatment outcomes, they also include implied or specific theoretical assumptions about cost reduction. All case management strategies assume that spending on one aspect of a patient's functioning will be offset by compensatory declines in other resources used by the client. Specific mechanisms by which resources are managed however, vary widely among the various theoretical models (Clark and Fox 1993).

The last decade has seen a burgeoning interest in case management services to people with severe mental illness. Much of the mental health literature of the late 70s and early 80s focused on unmasking the desperate circumstances of the "chronically mentally ill". These people are frequently unable to access services to meet the most basic community survival needs because of an inadequate, fragmented service system (Chamberlain and Rapp 1991; Rubin 1992; Turkus 1991).

The current political, social, and clinical push is to de-institutionalize mentally ill patients. This two decade trend has created a "revolving door" pattern of acute psychiatric hospital use. Readmission has been a recurring issue in mental health policy for the entire de-institutionalization period because of patient non-compliance to therapy (Dietzen and Bond 1993)

While consensus is not universal (Rossler et al 1992), there is currently some agreement that the readmission "revolving door" can be checked when the mentally ill are served by case managers.

These case managers develop a client centered basis for rendering and coordinating services needed by each individual through a caring and long-term personal association with their patients. Non-institutionalized psychiatric clients who acquire case management assistance are more likely than others who do not have a case manager not to be socially isolated, to live more independently, to function better at work, and to enjoy a better quality of life in general (Rubin 1992; Dietzen and Bond 1993).

Purpose

The aim of this study is to analyze and evaluate NMCP's psychiatric case management program - the Continuity of Psychiatric Care (CPC) program at NMCP. This analysis will focus on CPC's effectiveness and efficiency at saving occupied bed days (OBDs) by preventing inpatient readmissions and the cost benefit related to those savings. The findings will be used to provide recommendations for system improvements to the NMCP Commander.

CHAPTER 2

METHODS AND PROCEDURES

The research method chosen for this project is a case study. It is a suitable analytical tool when the researcher has little or no control over the process being analyzed but allows "how" or "why" questions to be answered and when the focus is on a contemporary phenomena within some real-life context (Sypher 1990; Yin 1994). An exploratory case study will be used for this paper since the psychiatric case management program at NMCP is only a year old. Little baseline data on the program's efficiency and effectiveness has been examined comprehensively.

As a research endeavor, case studies contribute uniquely to our knowledge of individual, organizational, social, and political phenomena. The case study has not surprisingly been a common research strategy in psychology, sociology, political science, business, social work, and planning. Briefly, case studies allow an investigation to retain the holistic and meaningful characteristics of real-life events such as individual life cycles, organizational and managerial processes, neighborhood change, international relations, and the maturation of industries (Yin, 1994).

Plausible advantages of a case study include establishment of information that may point toward hypotheses formulation,

explanation and definition of concepts and variables for further study, and discovery of ways to measure the variables. The main disadvantage of a case study is the inability to infer findings upon a larger population based on the limited focus (Yin 1994).

Resources relied upon for this case study include a comprehensive literature review through local medical and university libraries, extensive interviews of clinical and administrative staff at NMCP, and a thorough review of pertinent public and institutional documents. This examination of the literature lead to the conclusion that there is a need for an analysis of the NMCP's CPC case management program's efficiency and effectiveness and how it relates to cost savings resulting from lower inpatient occupied bed days (OBDs) saved by intensive outpatient case management.

The research design of this case study has five components (Yin 1994): the study's question - does the Continuity of Psychiatric Care (CPC) program save occupied bed days (OBDs) by preventing inpatient readmissions thereby creating a cost benefit related to those savings?; its propositions - psychiatric case management does lower the number of OBDs due to readmissions thereby creating a cost benefit; its units of analysis - OBDs which are defined as all inpatient days after the day of admission; the logic linking the data to the propositions - in general, psychiatric outpatients who are not managed while in an outpatient status will have higher readmission rates than those who are followed by case managers (Rivera 1994, 1995; Dietzen and

Bond 1993), therefore un-managed outpatients will use more inpatient OBDs due to readmission; and the criteria for interpreting the findings - analysis of workload management data on average length of stay and OBDs accounted for by managed and un-managed psychiatric admissions and readmissions for Fys 1992, 1993, and 1994, analysis of data on readmission OBDs by managed and unmanaged psychiatric patients awaiting Medical Board processing, and the cost benefit analysis of the CPC program at NMCP.

Regardless of the procedure by which an appraisal is made, the issue of quality of the study has to be resolved before the it can become useful. As a measure of quality, validity and reliability must be established to accomplish this goal. Four tests are common to all social science methods: construct validity; internal validity; external validity; and reliability (Yin 1994).

Construct validity establishes correct operational measures for the concepts being studied (Yin 1994). There are two operational measures that will be used in this study. First, OBDs as defined previously. Both the treatment philosophies and the number of and ward configuration of psychiatric inpatient beds has fluctuated significantly over the past four years within the Psychiatry Department at NMCP (Rivera 1994, 1995; Carey 1995). Therefore, inpatient census changes could not be used as a reliable comparison tool. Using OBDs allows comparative evaluation of OBD percentages from various sources against total

OBDs regardless of both bed configuration and number. Second, the cost of an OBD at NMCP (\$257), Maryview Medical Center (\$380), Norfolk Psychiatry Center (\$505/OBD plus \$198/patient for professional fees), and NMCP Psychiatric Medical Hold (\$142) are used for cost benefit analysis (Bronson 1995; Weiss 1995).

Internal validity establishes a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships (Yin 1994). Internal validity is not intended to be used for exploratory studies and therefore will not be established in this study.

External validity establishes the domain to which a study's findings can be generalized. This study is of active duty military psychiatric patients at NMCP. Naval Medical Center Portsmouth, Virginia is a 400 bed multi-service teaching medical treatment facility. There are 10 Directorates within the NMCP organizational structure. All of them directly or indirectly influence care delivered in the Psychiatric Department (Appendix B).

The Psychiatry Department falls under the Medical Directorate. It provides psychiatric evaluation and treatment and takes appropriate administrative action for active duty personnel and for eligible dependents and retired personnel as space and staffing permit within the confines of quality care. (Appendix B).

Active duty inpatient psychiatric patients at NMCP are treated on three wards (50 beds) for a wide variety of

psychiatric diagnoses ranging from substance abuse, schizophrenia, psychotic disorders, bipolar disorders, and many more. Inpatient census averaged 1,200 (11,950 OBDs) patients per year over the last three fiscal years (Weiss 1995, Sims 1995).

After discharge from the inpatient setting, many psychiatric patients are treated on an outpatient basis while awaiting final disposition either back to full duty, limited duty, or out of the military. Findings of this study might provide useful information for the management of psychiatric patients at similar military medical treatment facilities.

Both the construct and external validity of this case study was established by gathering empirical evidence from multiple sources. These sources support any findings or conclusions gleaned.

Reliability examines the stability of the measurement process itself when applied under standard conditions with the same results (Loether and McTavish 1993; Yin, 1994). The reliability of this study will be based on maintenance of documentation by the researcher thus allowing duplication of findings.

CHAPTER 3

RESULTS

The inpatient wards of the Psychiatric Department at NMCP are busy units treating active duty military beneficiaries. Total inpatient admissions for FYs 1992, 1993, and 1994 was 1,276, 1,100, and 1,208 respectively (Weiss 1995; Simms 1995; Laws 1995). Psychiatric OBDs at NMCP were 11,008, 11,361, and 13,458 respectively for FYs 1992, 1993, and 1994 (Weiss 1995) (Appendix C).

The cost of a psychiatric OBD (after step down accounting) for active duty patients at NMCP is \$257 (Weiss 1995). It cost \$142/day to treat a client as an outpatient in Psychiatric Medical Holding Company (Weiss 1995, Bronson 1995). The value of jobs held by patients housed in Medical Holding Company is \$11.45/hour (\$92/day) or the equivalent of the Navy Hospitalman (E-3) hourly rate (Reese 1995) (Appendix C).

Contracted psychiatric services for bed non-availability are used at Maryview Medical Center in Portsmouth, VA or at the Norfolk Psychiatric Center in Norfolk, VA. Inpatient psychiatric OBD cost for those facilities are \$380 and \$505 respectively. Norfolk Psychiatric Center charges \$198 per admission for additional professional services and physician fees (Bronson 1995) (Appendix C).

Naval Medical Center Portsmouth's ALOS for inpatient psychiatric admissions for FYs 1992, 1993, and 1994 was 8.1, 9.9, and 11 days respectively. The average percentage occupancy rate in the Psychiatric Department for FYs 1992, 1993, and 1994 was 50%, 60%, and 71% respectively. The percentage occupancy rate by the NMCP Psychiatric Service for FYs 1992, 1993, and 1994 was 65.6%, 67.7%, and 80.2% respectively. While ALOSs, occupancy rates, and OBDs have gone up, funds utilized for patient care has stayed constant (Weiss 1995; Laws 1995; Dunn 1995-) (Appendix D).

Supplemental care dollars for active duty client bed non-availability expended in FYs 1992 and 1993 was insignificant. Over \$53 thousand (62 patients) was spent in FY 1994. In the first two quarters of FY 1995, \$39,300 was paid for 80 active duty patients. The expected final cost for these two quarters is \$129,700. The projected cost of bed non-availability for active duty patients for FY 1995 is \$259,400. This is a 484% increase over FY 1994 supplemental care expenditures (Bronson 1995) (Appendix E).

Inpatient psychiatric readmissions at NMCP for FYs 1993 and 1994 were 126 (11.5% of total admissions; ALOS 14 days) and 99 (8% of total admissions; ALOS 13 days) patients respectively. These readmissions accounted for 1,752 OBDs (15.4% of total) and 1,291 OBDs (9.6% of total) in FYs 1993 and 1994 respectively (Weiss 1995) (Appendix F).

Readmitted active duty beneficiaries treated as inpatients in NMCP cost \$450,264 and \$331,787 respectively for FYs 1993 and

1994. Had they not been readmitted and treated as outpatients in Medical Holding Company, the cost would have been \$87,600 and \$64,550 respectively (Appendix F).

If NMCP inpatient beds were not available, FYs 1993 and 1994 comparative costs at Maryview Medical Center would have been \$665,000 and \$490,580 respectively. The cost for Norfolk Psychiatric Center would have been \$909,708 and \$671,557 respectively for FYs 1993 and 1994 (Appendix F).

In FY 1993, 56% (71) of NMCP psychiatric patients inpatient readmissions returned within 30 days of initial discharge accounting for 722 OBDs (41% of total). Twenty percent (25) returned within 31-60 days accounting for 492 OBDs (28% of total). Ten percent (12) returned within 61-90 days accounting for 169 OBDs (10 % of total). Fourteen percent (18) returned within or greater than 91-120 days accounting for 369 OBDs (21% of total (Appendix F).

In FY 1994 66% (65) of readmitted patients returned within 30 days accounting for 555 OBDs (43 % of total). Ten percent (10) returned within 31-60 days accounting for 337 OBDs (26% of total). Six percent (6) returned within 61-90 days accounting for 69 OBDs (5% of total). Eighteen percent (18) returned within or after 91-120 days accounting for 330 OBDs (26 % of total) (Appendix F).

Delays in the Medical Boards process increase the chance that psychiatric outpatients will be readmitted (Rivera 1994, 1995). Guidelines for the Navy-wide Medical Boards process are

covered in chapter 18 of the Manual of The Medical Department. There are many different types of Medical Boards. Physical Evaluation Boards (PEB) are looked at for this study. Information related to PEBs is highlighted in Appendix G.

Based on two evaluations by Rivera, the intra-departmental Medical Board process for PEBs takes on average 33 days to complete with a range of 16-77 days (Rivera 1994, 1995). The biggest delay in the process is an average of 28 (range of 16-77 days) days for obtaining three physician signatures on the dictated board (Kemp 1995) (Appendix G).

The Command Medical Board process for PEBs averages 10 days but can take as long as 90 days. The PEB process in Arlington, VA averages 90 days but can take as long as 180 days (Rivera 1994, 1995; Mitchell 1995). Given these figures, total time for PEB completion is 133 days (4.6 months) (Appendix G).

In 1993 before institution of case management, the population that the CPC program would target in 1994 had a readmission rate of 86.6%. In calendar year 1994 this population under case management had a readmission rate of 11.2% (Rivera 1994, 1995) (Appendix H).

The CPC program managed 48 patients in FY 1994. Thirteen of these 48 (27%; ALOS 19 days) CPC patients were readmitted. CPC patients accounted for 13 of 99 (13%) total readmissions. During this same time period, CPC clients accounted for 251 of 1,291 OBDs (19.5%) due to readmissions. Overall, CPC patients readmitted accounted for 1.9% of 13,458 total psychiatric OBDs

(Weiss 1995) (Appendix H).

The ALOS for CPC readmissions is 19 days. Without case management, an extra 528 OBDs would be expected from the CPC target population for FY 1994. On average the cost for these readmissions would have been \$177,298 with a range of \$109,296-\$248,358 for FY 1994 (Weiss 1995) (Appendix H).

Continuity of Psychiatric Care patients for FY 1994 readmitted within 1-30 days, 31-60 days, 61-90 days and within or after 91-120 days were 5 (69 OBDs), 0, 2 (15 OBDs), and 6 (167 OBDs) respectively. Had the Medical Board process been completed before 60 days, there was potential for a savings of 182 OBDs (73% of CPC readmission OBDs). This costs out to a potential average savings of \$69,809 with a range of \$46,774-\$93,494 (Weiss 1994) (Appendix H).

In FY 1994, 115 psychiatric outpatients not managed by the CPC program were processed out of the military via PEBs (Mitchell 1995). Within this group, 105 OBDs could have been saved if the Medical Board process was completed before 60 days. This represents a potential average savings of \$41,818 with a range of \$26,985-\$58,569. The total average potential savings with case management was \$111,627 with a range of \$73,759-\$152,063 (Appendix I).

The CPC program is staffed by one military Commander (O-5) registered nurse (RN) with a Master's Degree in Psychiatric Nursing who is the program's director, two military Petty Officer (E-4) psychiatric technicians/case managers, and two military (E-

4) psychiatric technicians assigned to Psychiatric Medical Holding Company. Currently, the CPC staff comes out of the existing Psychiatric Department billet structure. Positions are not designated billets targeted for case management. Therefore, the CPC staff cannot devote their full attention to case management because of other responsibilities.

The full time equivalent (FTE) O-5 RN position cost is \$98,824/yr (Reesey 1995). Each case manager and psychiatric technician FTE E-4 position costs out at \$28,405 annually (Reesey 1995). Cost of the RN manager and two case managers is \$156,038/yr. Cost for Medical Hold psychiatric technicians is \$56,811. Total staff costs for running an independent CPC program would be \$212,446 annually (Reesey 1995) (Appendix J).

The potential exists for significant savings if the Medical Boards process can be completed in less than 60 days in conjunction with case management. The average potential cost benefit of the CPC program for FY 1994 was \$448,260 with a range of \$342,390-\$559,756 (Appendix J).

CHAPTER 4

DISCUSSION

Prior to institution of the CPC program, comprehensive coordinated psychiatric case management was not provided at NMCP. Dis-jointed care resulted in high readmission rates and the expenditure of unnecessary funds on inpatient psychiatric care.

Historically within the Psychiatric Department at NMCP, there was an abundance of funding, occupancy rates were down, and staff and unit work loads were relatively low. There was little pressure to manage and coordinate psychiatric care. Psychiatric patients awaiting Medical Boards (PEB) were discharged as outpatients to general Medical Hold to fend for themselves. Without the coping or mental capacity to coordinate their own follow-up care, they relapsed and were readmitted at an alarming rate.

In the 1990's, pressure to control costs while improving the quality of services through managed care have come to bear. Readmissions, higher inpatient censuses, rising ALOSs and staff and ward working percentages of capacity within the Psychiatric Department have placed significant pressure on a lower funding base. Increased Navy contingency requirements in Haiti and Croatia that have taken psychiatric staff away and a possible link between stress and mental illness related to down-sizing of

the military are other recent factors increasing psychiatric workloads (Carey 1995). These pressures may be related to decreased NMCP inpatient bed availability that has caused expenditures of supplemental funds to sky-rocket.

The Continuity of Psychiatric Care program was created to increase the quality of psychiatric patient care. It is an extension and expansion of psychiatric care from inpatient to the outpatient setting. The program is a decentralized organizational structure designed to care for individual patients who can be identified as individual projects or categorized into individual episodes of illness.

The CPC program is similar to models by described by Sandu et al (1992) and Applebaum (1990). The goals and elements of the program are similar to those described in the literature (Kongstvet 1993; Cunningham 1994; Birmingham 1994; Bower 1991; Quin 1993; and Robinson, Robinson, and Lewis 1992). The CPC program has also become a valuable cost control tool in response to increased fiscal pressures exerted by rising inpatient censuses and occupancy rates, inpatient readmissions, longer ALOSs, and shrinking budgets.

Initially, CPC began in January 1994 to provide discharge planning and case management-type services for clients with psychotic diagnoses. In November 1994, a second branch (described later) of the CPC "tree" began: Psychiatric Medical Holding Company (Rivera 1994, 1995).

The case management part of the CPC program is staffed by

one nurse and two psychiatric technicians. This staff collaborates regularly with members of the multi-disciplinary teams on the inpatient units and outpatient clinic (Rivera 1994, 1995).

The CPC program in its first six months focused primarily on inpatients and NMCP Medical Holding Company outpatients with a primary diagnosis of a psychotic disorder. These diagnoses included schizophreniform disorder, schizophrenia, bipolar disorder, or psychotic disorder. Presently, the CPC scope of care has been expanded to include select psychiatric patients with Post Traumatic Stress Disorder, and Major Depression (Rivera 1994, 1995).

The CPC program assists clients by providing comprehensive services along two distinct yet linked components of the continuum of psychiatric care:

1. Discharge planning while clients are in an acute phase of their illness, i.e. inpatient status.
2. Case management type services while clients are in a recovering phase of illness, i.e. as an outpatient in NMCP Medical Holding Company (Rivera 1994, 1995).

Participation in CPC is based upon provider referral and voluntary participation by patients. Resources and time permitting, the CPC team may provide assistance with discharge planning and services to other psychiatric inpatients (Rivera 1994, 1995).

The CPC program is a division of Psychiatric Nursing,

Directorate for Nursing Services, Area IV (Appendix B). It is a program which bridges inpatient and outpatient services and follow up. The overall purpose of CPC is to facilitate the optimal level of functioning for persons with serious, disabling mental illness throughout their care continuum at NMCP. Grounded in Orem's theory of self care, CPC aims to promote the right of each psychiatric client to highest degree of self determination and self care as possible (Rivera 1994, 1995).

An alternative view of CPC's purpose is to serve as a beacon for discharge planning and as a safety net for discharged clients, persons who ordinarily have a problematic course. The aspiration is that the gains toward self care during hospitalization will be maintained if not increased after discharge (Rivera 1994, 1995).

The overall objective of CPC is to provide comprehensive continuity of care to persons recovering from mental illness with psychotic features. This group has been identified as a vulnerable population, at high risk for adaptation difficulties. Those difficulties commonly include isolation, deterioration of functioning, non-compliance with medications, and an extraordinarily high readmission rate within two months of discharge (Rivera 1994).

In the promotion of each person's optimal level of functioning, CPC provides support, guidance and direction, education, monitoring, linkage to services and resources via two primary delivery systems:

1. Discharge planning services which start within the first ten days of hospitalization.

2. Case management type services during the transition from inpatient psychiatry to discharge from Medical Holding Company based on voluntary participation and team referral (Rivera 1994).

The specific objectives of CPC are:

1. Assess and facilitate clients' optimal self care abilities (including living skills) throughout the continuum of care through work with individual unit and team members to identify needs and services.

2. Facilitate client's symptom management through a variety of teaching methods and support for patients and their families.

3. Identify needs and coordinate discharge planning with the multi-disciplinary team through the following mechanisms:

a. For initially targeted clients, CPC team members will participate in weekly team conferences, reports, case conferences, and other multi-disciplinary team meetings regarding clinical issues.

b. Work with Social Work and Discharge Planning/Utilization Review departments to coordinate optimal care.

c. Spearhead intensive and comprehensive discharge planning by the first team conference (within the first ten days of admission) and thereafter.

d. Liaison and broker resources, primarily for targeted clients, secondarily for non-targeted clients.

e. CPC team members will be a resource as needed and workload permitting for non-targeted clients during the initial start up of this program.

4. Guide and advocate for clients in the system in order to optimize "system negotiation" on their behalf.

5. Link the client and family to services within the local area.

6. Link the client and family to services outside of the local area to include at the very least names, phone numbers, and points of contact for resource agencies at the client's home site (e.g. Veterans' Affairs offices and hospitals, National Alliance for the Mentally Ill (NAMI) groups, Community Service Boards, and state vocational and rehabilitation services.

7. Provide education and guidance to client and family by the following actions:

a. Welcome and include families from the beginning of hospitalization providing them with a point of contact for information and support.

b. For local families, provide symptom management and resource information via family classes and group meetings.

c. For long distance families, provide an individualized packet of information including: illness, medications, NAMI, VA, and other resources, points of contact, etc.

8. Be available for phone or on-base crisis intervention during working hours. After hour coverage will be per the Emergency Department or Ward 3G.

9. Consistently monitor and guide NMCP Medical Holding Company psychiatric clients after hospital discharge by the following avenues:

a. Meet at least weekly with target population clients individually and in "after care" groups.

b. Continue to provide education and support to patients and families.

c. Liaison with clients' supervisors, peers in their work setting (Med Hold jobs).

10. Regularly assess for the therapeutic and side effects of medication(s) using established tools:

a. Assess for medication effects regularly and document.

b. Give the client a copy of medication assessment tools for their follow-up after military discharge.

c. Implement medication assessment tools for all inpatients receiving psychotropic medications.

11. Assess and facilitate medication compliance by providing education, support, and creative interventions as needed by clients and support systems in order to enhance consistency regarding medication dosing.

12. Facilitate optimal vocational planning. Arrange for a Medical Hold job that meets client's and CPC team's objectives.

Refer to transitional Assistance Planning Services (TAPS) classes for Veterans Administration and state vocational rehabilitation for opportunities.

13. Facilitate optimal Medical Hold "job placement". Arrange for a job that meets the client's and the CPC team's objectives. Liaison with clients' supervisors, peers in the work setting (Med Hold job) (Rivera 1994, 1995)

The second branch of the CPC program Psychiatric Medical Holding Company (PMHC). It is a 36 bed housing area staffed by two psychiatric technicians that extends CPC services by providing "live-in" support as needed for persons with serious, disabling mental illness. Focus is particularly on the off-work hours which tend to be unstructured and difficult for individuals with impaired social skills to deal with (Rivera 1994, 1995).

Additionally, PMHC provides psychiatric triage services to all general Medical Holding Company (MHC) residents as needed. This further extends the continuum of care and exemplifies holistic nursing intervention consistent with the Dugan Model of Dynamic Integration (Rivera 1994, 1995).

The purpose of PMHC is to optimize psychiatric outpatients' level of functioning by providing supplemental psychiatric clinical services in a residential setting. Specific objectives of PMHC are all aimed at helping each resident achieve an optimal level of functioning and minimize disability by providing the following services:

1. Facilitate a supportive environment for psychiatric

outpatients.

2. Provide support and guidance in daily living and symptom management as needed.

3. Facilitate skills development and practice, particularly social skills and symptoms management skills, by teaching skills modules during the off-work hours (learning and practicing social and symptom management skills directly correlates with successful adaptation).

4. Provide additional monitoring of symptoms and treatment in collaboration with the psychiatric treatment team.

5. Provide psychiatric triage services as needed to all residents of MHC.

6. Serve as a psychiatric clinical resource for the NMCP staff (Rivera 1994, 1995).

Since its inception in 1994, the quality of services provided by the CPC program appears to have saved money by lowering the readmission rate of its target population. This lowered readmission rate may have increased available inpatient psychiatric beds at NMCP thereby lowering expenditure of supplemental funds for bed non-availability.

The Medical Boards process for PEBs requires a significant number of CPC patients to remain on active duty beyond 60 days. The reasons for these delays are found in Appendix G. System redundancy, lack of coordination in the system, and long holdups in obtaining physician signatures during the intra-departmental board process appear to be the main causes of delays.

In general PEB delays can be related to the fact that no one department is in control of the entire Medical Board process for psychiatric patients. This is unlike all other medical services within NMCP that have their Medical Boards processed solely by the Patient Administration Department (Mitchell 1995,).

Within the system there is no one authority that addresses the issue of time lost by delays in obtaining physicians' signatures on boards within psychiatric intra-departmental process. No single authority effectively monitors and tracks system technical and procedural problems, addresses poor patient compliance to procedure, and coordinates identification of alternates to replace staffing absences because of leave and Temporary Additional Duty (TAD).

Prevention of delays in the external PEB process have not been explored fully. There is a tracking system for PEBs within the Medical Boards section of Patient Administration. However there is no evidence that an effective liaison exists that is working with the PEB in Arlington, Va. to address causes for and solutions to problems causing delays. Because of due process, delays in PEB results due to rebuttal of Board results by patients may be unavoidable.

The CPC program has pushed back the time of readmission for a significant percentage of its target population beyond 60 days after initial inpatient discharge. In conjunction with the CPC program, additional OBDs and expenses for those days can be saved if the time to process Medical Boards (PEB) can be decreased to

less than 60 days.

This is a reasonable target considering that local processing for Medical Boards at NMCP is supposed to be completed within 20 days. The PEB process at Arlington, VA is supposed to be completed in between 28-42 days (Mitchell 1995). There is a window of opportunity of 71 days for NMCP to avoid readmission OBDs filled by CPC outpatients awaiting PEBs and who are likely to be readmitted within 90 days (days 61-90). This 71 days is the sum of initial days for inpatient admission (11 days on average) and 60 days as a CPC outpatient before expected readmission.

The combination of a decreased time to process Medical Boards and an expansion of the CPC program to cover a larger target population and provide expanded services that include assistance related to the PEB process could significantly decrease the expense of readmission OBDs from all sources.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The purpose of this study was to analyze and evaluate NMCP's psychiatric case management program - the Continuity of Psychiatric Care (CPC) program. This analysis focused on CPC's effectiveness and efficiency at saving occupied bed days (OBDs) by preventing inpatient readmissions and the cost benefit related to those savings.

In the 1990s expenditures for health care services are shrinking while the demand for those services is rising. As budgets continue to fall and demand continues to rise, a major shift in health care delivery toward managed care has occurred.

A major component of managed care is case management. This holistic structured approach to patient care seeks to provide high quality services appropriately at the most efficient cost. Studies by Robinson, Robinson, and Lewis (1992) and Cohen (1991) bear this out by showing that through deliberate and collaborative case management, inpatient ALOSs can be reduced and a link can be shown between quality and cost-effective care.

In the Psychiatric Department at NMCP, inpatient census from FYs 1992-1993 was consistent. However, ALOSs and OBDs have gone up. Along with these increases, there have been rises in the

percentages of workload capacities for the both the professional staff and on the inpatient wards.

These increases may be related to the rise in numbers of non-available beds for active duty clients and consequent rises in the expenditure of supplemental care dollars. Figures from the Psychiatric, Patient Administration, and Resources Departments at NMCP substantiate this assumption.

Compounding the issue of bed non-availability is the problem of OBDs taken up by psychiatric readmissions at NMCP. In FYs 1993 and 1994 15.4% and 9.6% of OBDs respectively were filled by readmitted clients. These filled inpatient beds became non-available to a new patients and may have increased the use of contracted services at more expensive civilian institutions.

The CPC program targets for case management the most severely ill psychiatric patients. These patients have the highest readmission rates. In the first year of CPC case management, the readmission OBDs of this population declined dramatically.

The quality of services provided by CPC is high. By meeting and anticipating patient needs, the CPC program may have prevented a higher percentage of its targeted clients (in contrast to the same clients without case management) from being readmitted before 60 days after initial inpatient discharge.

A significant factor related to this readmission time frame is the Medical Board process for Physical Evaluation Boards (PEB). This system is a complicated bureaucratic process that is wrought-up with internal and external system delays. In some

cases, it prolongs the stay of CPC patients on active duty greater than 60 days thereby increasing their risk for inpatient readmission. If the Medical Boards process could be completed before 60 days for CPC clients, NMCP might realize a significant savings in the cost of psychiatric readmission OBDs.

Currently, the CPC program is staffed by one RN and two psychiatric technicians for case management and two psychiatric technicians who run the Psychiatric Medical Holding Company. As part of the general Psychiatric Nursing Department billet structure, the CPC staff is limited in both the services it can provide and number of clients it can manage because its responsibilities are diluted by other primary responsibilities.

Recommendations

The results of this case study are derived from data related to the CPC program. This program has been in existence since January 1994. Initial short-term data analysis indicates that the program has been of benefit to NMCP. However, additional study is needed to identify the long-term benefits of psychiatric case management in terms of trends in readmission OBDs saved, quality of care delivered, and utilization of resources.

If the long-term data analysis reflect the short-term findings, two recommendations are given. First, consideration should be given to fully funding the RN and two technician/case manager positions in the CPC program. Such a move would allow

full time case management for a larger target population. As part of expanded case management services in conjunction with the Patient Administration Department, the CPC could internally monitor and expedite the Medical Board process for their clients with a target goal of completing that process in less than 60 days. Cost savings from both lower readmission OBDs and decreased use of supplemental dollars for bed non-availability might be realized.

Second, in conjunction with an expanded CPC program, it is recommended that the intra-departmental Psychiatric Medical Board process be discontinued and brought totally under the Command Medical Board Section in Patient Administration. This is the case with all other medical services within the Command and should be for the Psychiatric Department. The Psychiatric Department should be held to the same 20 day completion standard that all other medical departments are held to.

Many of the bureaucratic delays in the current dual system are related to gray areas of responsibility and enforceability. A unified program under the Patient Administration Department would allow clear lines of responsibility and cut out duplicated processes within the Psychiatric Department. I also recommend that the Command through the Patient Administration Department work with the PEB in Arlington, VA to achieve a goal of 28-42 days to process boards through their system.

Close coordination with an expanded CPC program staff could cut time out of the process by:

1. Ensuring boards are dictated by physicians.
2. Ensuring that patients with their records report promptly to Medical Boards Section for processing.
3. Providing liaison with and tracking of medical staff to minimize the time lost awaiting physicians' signature on a completed board.
4. Minimize time lost in clerical processing.
5. Coordinating procedures to hit the NMCP target date of 20 days for internal processing time for PEBs.
6. Coordinating and tracking psychiatric Medical Boards with a target process completion time of less than 60 days.

The move toward managed care in the health care arena is a challenge. Shrinking health care dollars, the demands for quality services, and the demand for system access are the driving forces behind this movement.

In response to these pressures on a local level, results of this case study of the CPC program in the Psychiatric Department at Naval Medical Center, Portsmouth, Virginia indicates that case management can help address this challenge.

APPENDIX A

UNITED STATES POPULATION GROWTH RATE

Adults Aged 65 Years and Older 1900-2050

Over the next sixty years, the percentage of the population over 65 years of age will almost triple from 8.1% to 21.8% (fig 1). This older population will use more health care services. Naval Medical Center Portsmouth, Virginia will not be immune to the pressures exerted by this increased demand.

Conclusions

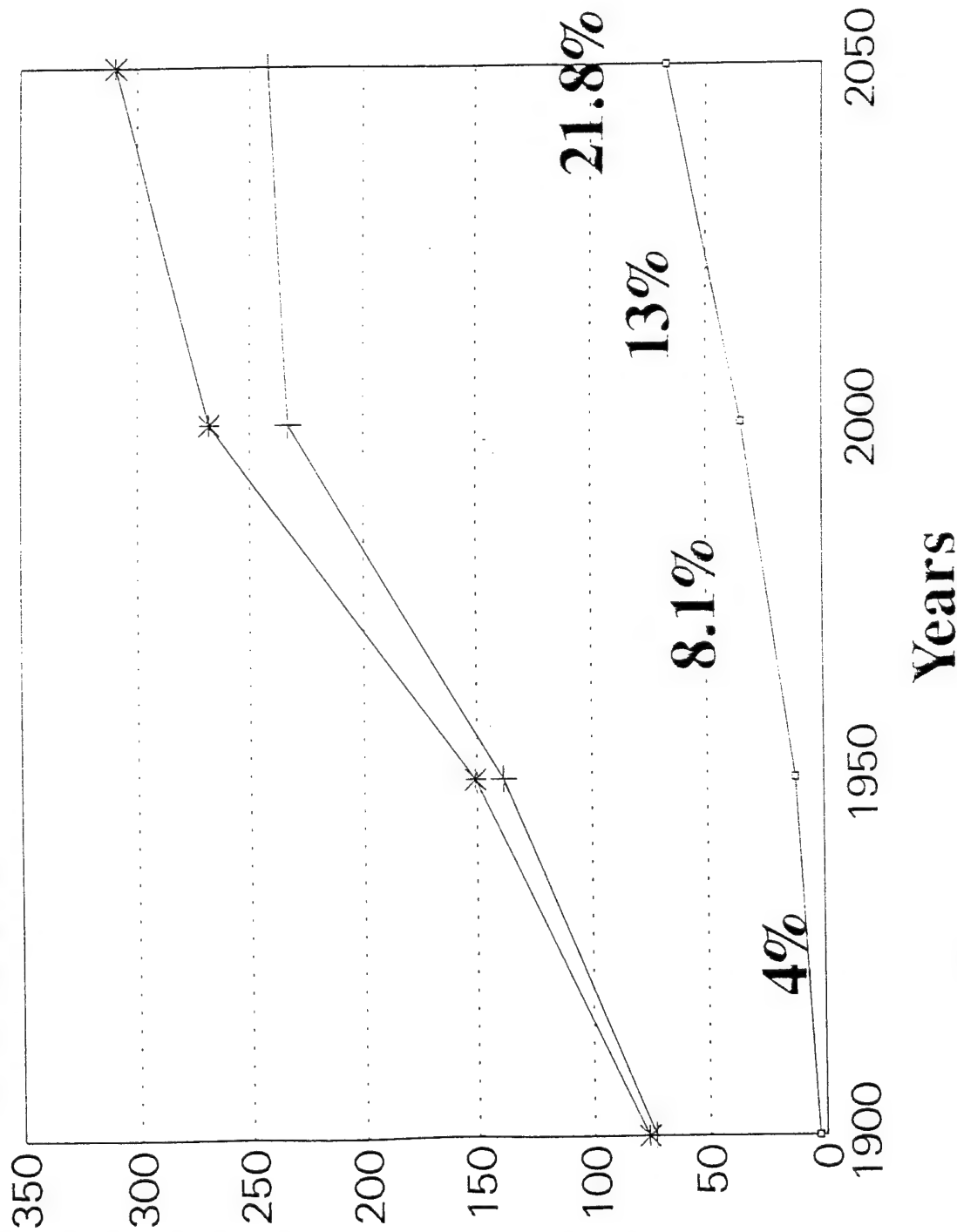
This type of pressure along with shrinking health care budgets will fuel the push to managed care. Case management as part of overall managed care will offer an opportunity for NMCP to effectively and efficiently manage limited health care dollars.

Source of information in Appendix A: Coile 1994

UNITED STATES POPULATION GROWTH RATE

Adults Aged 65 Years And Older 1900-2050

MILLIONS



APPENDIX B

NMC PORTSMOUTH DESCRIPTION AND ORGANIZATION CHART
PSYCHIATRIC DEPARTMENT DESCRIPTION AND ORGANIZATION CHART

Naval Medical Center, Portsmouth, Virginia

Description and Organization Chart

1. Purpose

The purpose of Naval Medical Center Portsmouth (NMCP) is to promulgate the mission, functions, and tasks established by higher authority.

NMCP's mission is to provide a comprehensive range of emergency, outpatient, and inpatient health care services to active duty Navy and Marine Corps personnel and active duty members of other Federal Uniformed Services. Naval Medical Center Portsmouth ensures that all assigned military personnel are both aware of and properly trained for the performance of their assigned contingency and wartime duties. It assures that the Command is maintained in a proper state of material and personnel readiness to fulfill wartime and contingency mission plans.

The Medical Center provides as directed, health care services in support of the operation of the Navy and Marine Corps shore activities and units of the operating forces. Subject to the availability of space and resources, NMCP provides the maximum range and amount of comprehensive health care services possible for other authorized persons as prescribed by Title 10, U.S. Code, and other applicable directives.

The Medical Center conducts appropriate education programs for assigned military personnel. This ensures the both military and health care standards of conduct and performance are achieved

and maintained.

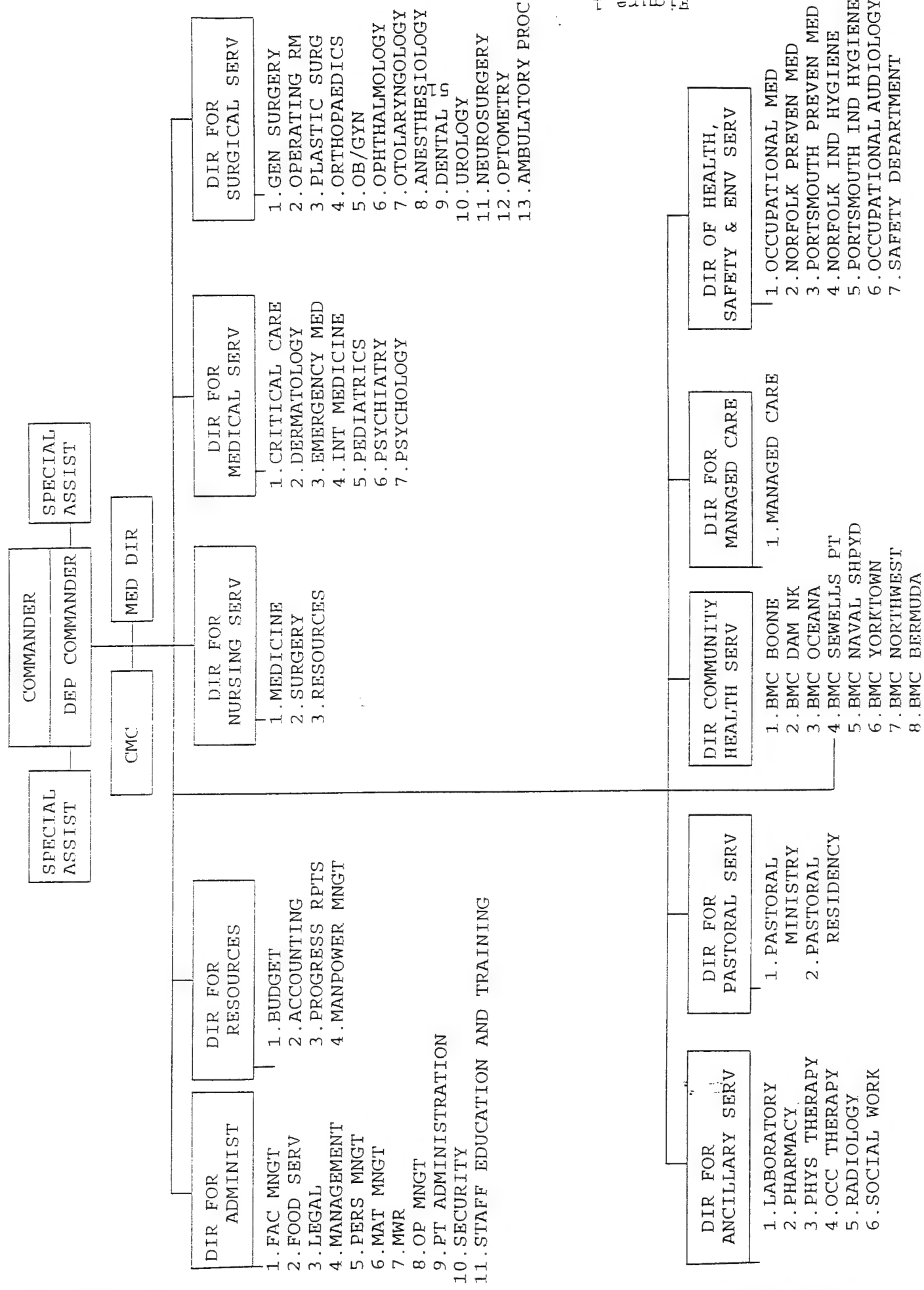
Naval Medical Center Portsmouth participates as an integral element of the Navy and Tri-service Regional Health care system. The Center cooperates with military and civilian authorities in matters pertaining to public health, local disasters, and other emergencies.

Requisite quality health care standards are maintained by NMCP so as to ensure successful accreditation and recognition by appropriate governmental and civilian agencies and commissions. This includes the Joint Commission on Accreditation of Health Care Organizations.

Organizationally, NMCP is divided into 10 distinct Directorates. These Directorates are: Administration; Resources; Nursing Services; Medical Services; Surgical Services; Ancillary Services; Pastoral Care Services; Community Health Services; Managed Care; and Health, Safety, and Environmental Services (fig 1).

The Medical Center is the lead agent for Region 2 of the TRICARE network. TRICARE is the Pentagon's version of health care reform. The program is designed to control rising health care costs and to provide uniform benefits to users of military health care. TRICARE is divided into 12 distinct geographic regions and each organized around a military hospital. This hospital or the "lead agent" is responsible for contracting with civilian physicians and hospitals and will coordinate all military medical services for beneficiaries in that region.

NAVAL MEDICAL CENTER PORTSMOUTH, VIRGINIA ORGANIZATION CHART



Psychiatry Department

Description and Organization Chart

The Psychiatry Department falls under the Medical Directorate. It provides psychiatric evaluation and treatment and takes appropriate administrative action for active duty personnel and for eligible dependents and retired personnel as space and staffing permit within the confines of quality care.

The department furnishes treatment, evaluation, consultation, and educational services to patients on an inpatient and outpatient basis. It also provides community services such as education and Command organizational consultation when requested or mandated.

The department staffs and trains an emergency Medical Mobilization and Response Team. This team is known as the Special Psychiatric Rapid Intervention Team and responds to disasters when directed by higher authority.

The Psychiatry Department maintains a four year post-graduate residency training program in Psychiatry accredited by the Accreditation Council for Graduate Medical Education. Clinical services of the Psychiatry Department are organizationally divided into three divisions: Inpatient Services; Outpatient Services; and Education and Training Services.

The Inpatient Services Division provides psychiatric care to patient admitted to the Department of Psychiatry. Services provided include evaluation, treatment and indicated administrative action through an organized system of inpatient wards. These wards provide acute and intermediate levels of care under the direction of the Assistant Department Head for Inpatient Services. This department is organized into the Clinical Services Branch and Neuropsychiatric Technician Branch.

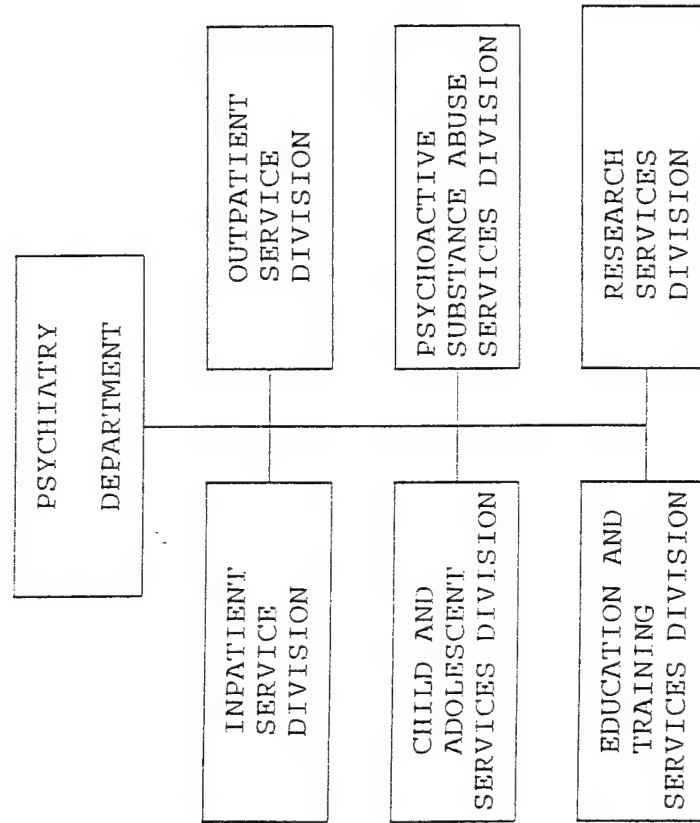
The Outpatient Services Division provides emergency, urgent, and routine outpatient psychiatric and psychological evaluation and treatment. This division provides consultative services for inpatients in other clinical departments. It provides liaison and education to other clinical departments and training programs. Additionally, it provides sub-specialty evaluation for forensic cases involving questions of competence and mental responsibility. Based on findings, the division takes administrative actions in accordance with the Manual of the Medical Department and current directives under the direction of the Assistant Department Head for Outpatient Services.

The Child and Adolescent Services Divisions provides emergency, urgent, and routine outpatient psychiatric and psychological evaluation and treatment. It provides consultative services for inpatients in other clinical departments. The Education and Training Services Division coordinates and monitors the residency training program and resident evaluation (fig 2).

The Department of Psychiatry is directly or indirectly

influenced by all ten Directorates within the NMCP organizational structure. All services delivered within the department must be coordinated with divisions within these various Directorates to provide comprehensive psychiatric care.

Source for information found in Appendix B: NMCP 1994



APPENDIX C

NMC PORTSMOUTH INPATIENT ADMISSIONS
OCCUPIED BED DAY RATES

Psychiatric Admissions and Occupied Bed Day Cost

Total inpatient admissions for Fys 1992, 1993, and 1994 was 1,276, 1,100, and 1,208 respectively (fig 1) (Weiss 1995; Simms 1995; Laws 1995). Fys 1992, 1993, and 1994 psychiatric OBDs at NMCP were 11,008, 11,361, and 13,458 respectively (fig 2) (Weiss 1995).

The cost of a psychiatric OBD (after step down accounting) for active duty patients at NMCP is \$257 (Weiss 1995). It cost \$142/day to treat a client as an outpatient in Psychiatric Medical Holding Company (Weiss 1995, Bronson 1995).

Manpower from Medical Holding Company is used at no extra cost for various low level jobs around the NMCP. For the purposes of this paper, the value for this work is conservatively set at \$11.45/hour (\$92/day) or the equivalent of a Navy Hospitalman (E-3) hourly rate (Reesey 1995).

When there are no inpatient beds available at the NMCP Psychiatric Department, contracted psychiatric services are used at Maryview Medical Center in Portsmouth, VA or at the Norfolk Psychiatric Center in Norfolk, VA. Inpatient psychiatric OBD rates for those facilities are \$380 and \$505 respectively (Bronson 1995). In addition, Norfolk Psychiatric Center charges \$198 per admission for a history and physical, PhD (psychology) services, and physician fees (fig 3) (Bronson 1995).

Conclusions

Inpatient admissions have been relatively consistent over the past three FYs while the number of OBDs have gone up. This may be related to changes in clinical treatment philosophies, more severe clinical illness that might be related to increased stress caused by down-sizing of the Navy, or contingency responsibilities in Haiti and Croatia that have taken professional staff away from the department (Carey 1995).

Sources for information found in Appendix C: Bronson 1995; Reese 1995; Weiss 1995; Carey 1995

NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT ADMISSIONS

Total Inpatient Admissions FYs 92, 93, 94

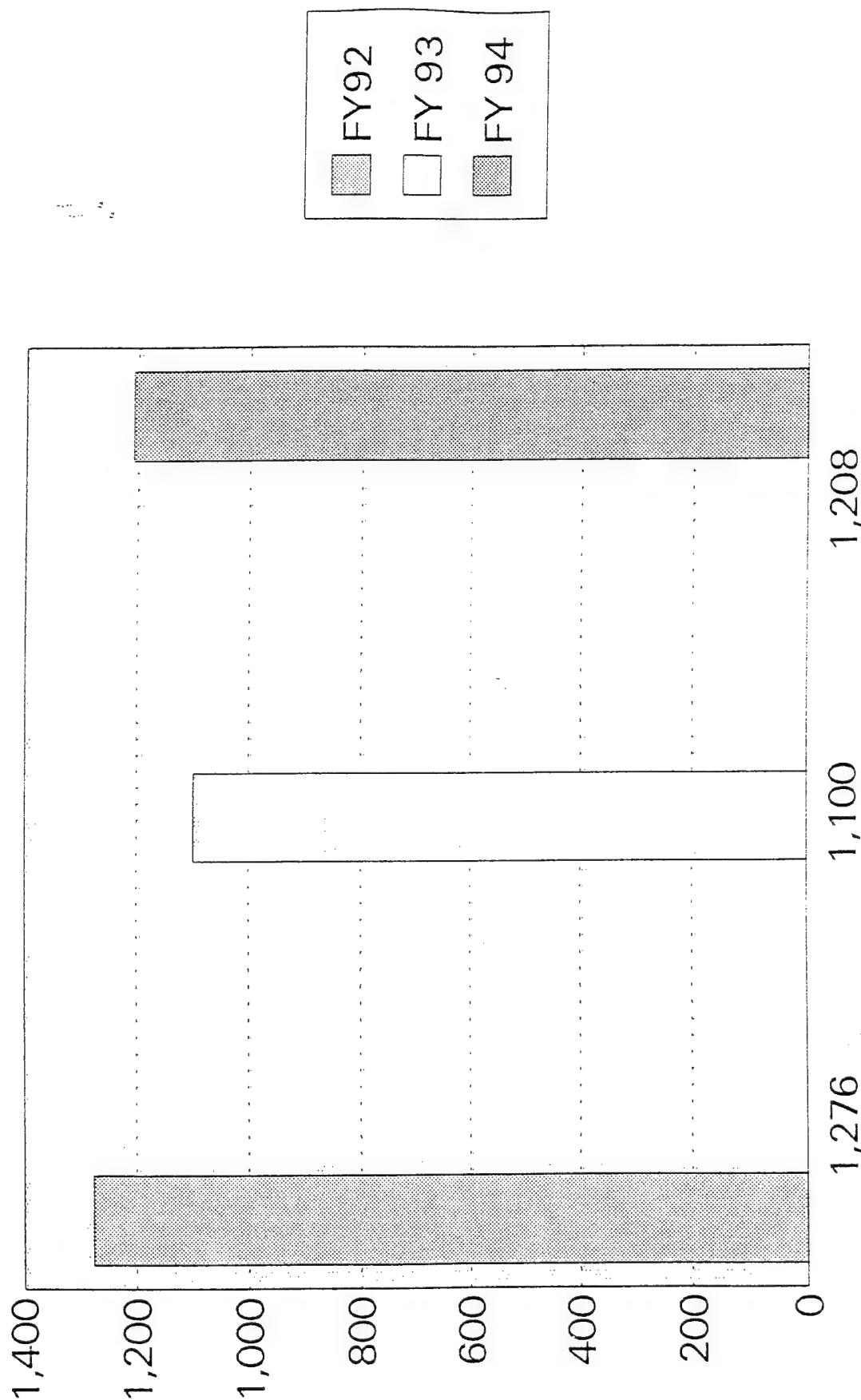
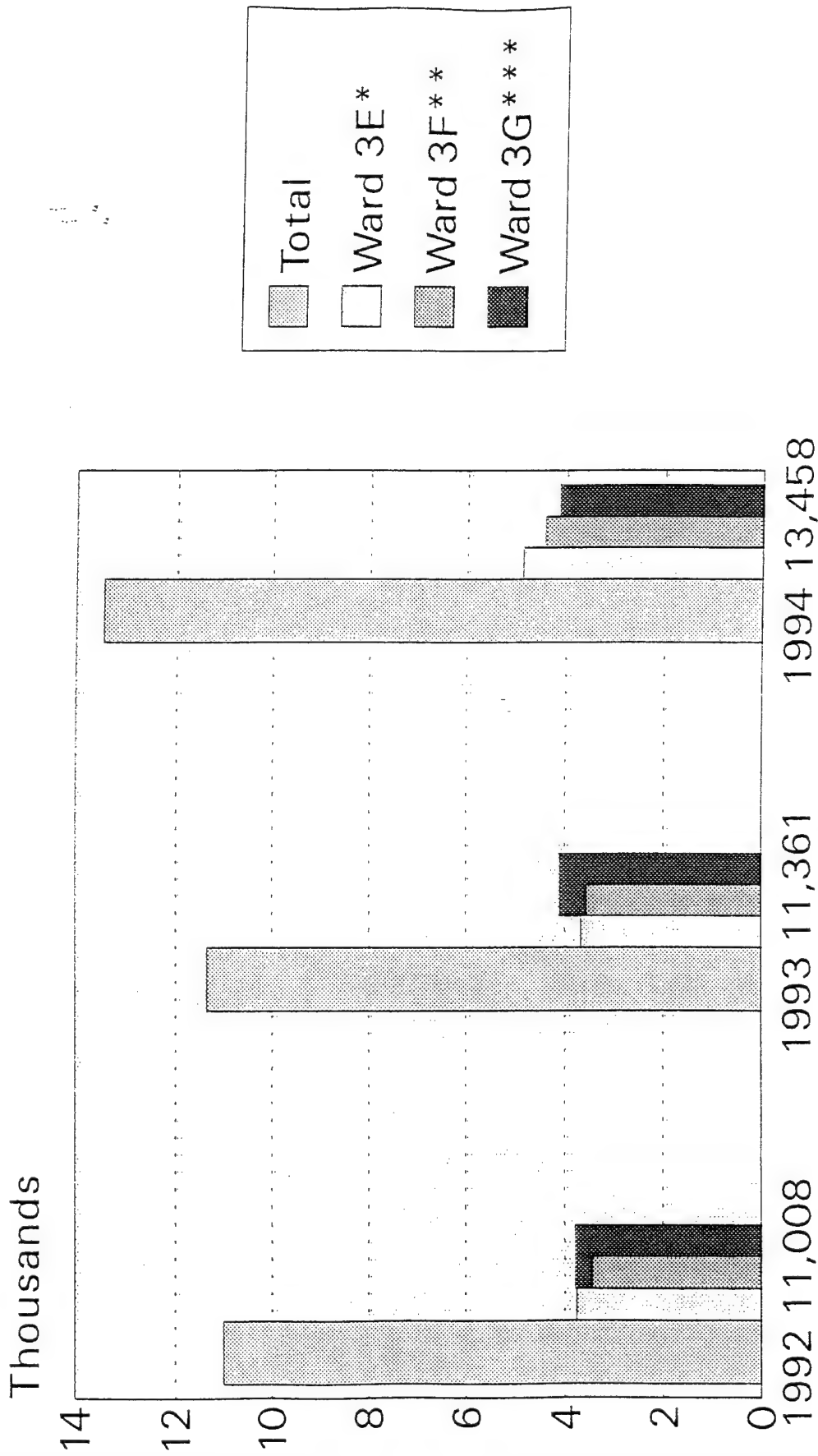


Figure 1

Source: Resources Department NMC Portsmouth, Virginia

NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT

Psychiatric Service Occupied Bed Days FYs 92, 93, 94



Source: Resources Department NMC Portsmouth, Virginia

*3E > FY 1992-3,764; FY 1993-3,677; FY 1993-1,866. **3F > FY 1992-3,451; FY 1993-3,572; FY 1994-4,433.

***3G > FY 1992-3,793; FY 1993-4,112; FY 1993-4,159.

NMC PORTSMOUTH, VIRGINIA OCCUPIED BED DAY COST COMPARISON

Comparative Cost Of An OBD At NMCP, Maryview Medical Center, And Norfolk Psychiatric Center

NAVAL MEDICAL CENTER PORTSMOUTH	MARYVIEW MEDICAL CENTER	NORFOLK PSYCHIATRIC CENTER	MEDICAL HOLDING COMPANY *	VALUE OF JOBS HELD BY MED HOLD PATIENTS **
\$257	\$380	\$505	\$142	\$92
		\$99 (I&P)@		
		\$17 (PMD Services)@		
		\$82 (Physician Fees)@		
		@ \$198 is charged to each patient for those services.		

Source: Resources and Patient Administration Depts. NMC Portsmouth, Virginia; Bronson 1995

* Daily norm a patient in Medical Holding Company.

** \$11.45/hr or \$92/day. Based on the hourly rate for an E-3.

APPENDIX D

NMCP PSYCHIATRIC DEPARTMENT ALOS
PERCENTAGE OCCUPANCY RATES

Average Length of Stay at NMCP

The average length of stay (ALOS) is defined as the average number of days per inpatient admission (Konstvedt 1993). Naval Medical Center Portsmouth's ALOS for inpatient psychiatric admissions for FYs 1992, 1993, and 1994 was 8.1, 9.9, and 11 days respectively (fig 1) (Weiss 1995; Laws 1995).

The American Hospital Association (AHA) for FY 1992 reports that federal and non-federal hospital psychiatric units have ALOSs of 64 and 55 days respectively nationally, 61 and 76.6 days respectively in the South Atlantic Region (which includes Virginia), and 86.4 days for non-federal facilities in Virginia. No federal facilities reported for the state of Virginia (AHA 1993).

Percentage Occupancy Rates by Ward and Service

Percentage occupancy rate by ward is defined as the rate at which an inpatient ward is operating in relationship to its full capacity relative to its compliment of staff (Weiss 1995). The average percentage occupancy rate in the Psychiatry Department for FYs 1992, 1993, and 1994 was 50%, 60%, and 71% respectively (fig 2) Weiss 1995). The AHA for FY 1992 reports that federal and non-federal hospital psychiatric units have national occupancy rates of 84.4% and 80% respectively, South Atlantic Region rates of 77.4% and 76.6 % respectively, and 86.4% for non-

federal facilities in Virginia (AHA 1993). Again, no data was reported by federal facilities in Virginia.

Percentage occupancy rate by service is defined as the rate at which a particular medical service is operating in relationship to its full capacity relative to the professional staff on that service (Weiss 1995). The percentage occupancy rate by the NMCP Psychiatric Service for FYs 1992, 1993, and 1994 was 65.6%, 67.7%, and 80.2% respectively (fig 3) (Weiss 1995). No data was available for national, regional, or local comparison of these figures.

American Hospital Association figures are provided for general comparison only. They include data on chronically ill patients who frequently require long term hospitalization. This category of patients is not a part of the clients treated at NMCP and may account for the wide differences in ALOSs between AHA figures and NMCP figures (Carey 1995).

Psychiatric Department Funding Usage

Over-all expenditures for inpatient care for FYs 1992-1994 was \$2.87 million, \$3.27 million, and \$3.22 million. Taking away funds for travel, shipping, rentals/leasing, equipment maintenance, equipment, and printing the adjusted actual figures for patient care were \$2.84 million, \$3.23 million, and \$3.18 million for military and civilian labor, purchased services/fees, and consumables (fig 4) (Dunn 1995).

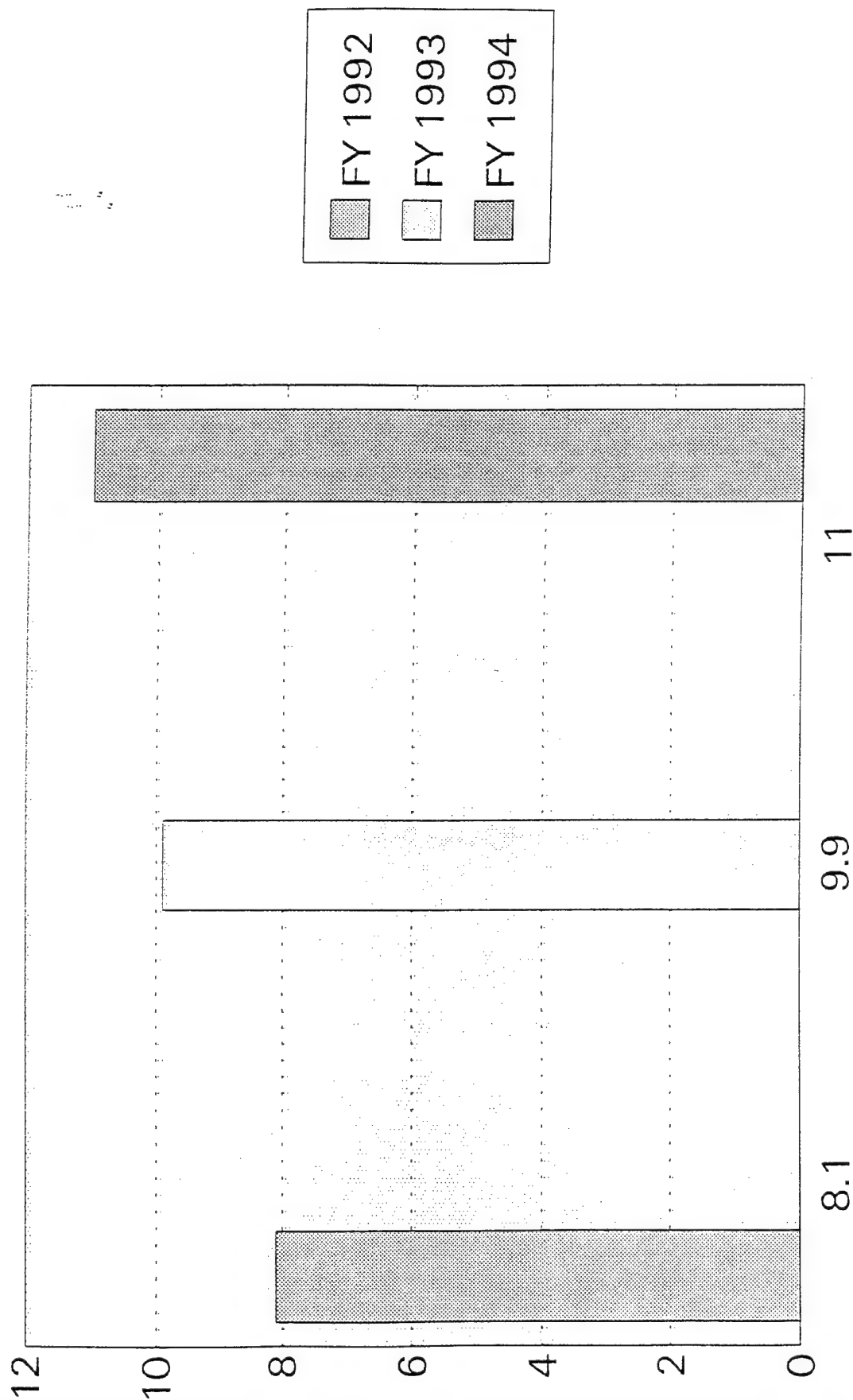
Conclusions

Average lengths of stay are going up in conjunction with both staff and department percentage occupancy rates while funds for patient care have remained relatively constant (fig 5). Higher ALOSs, increasing OBDs, and higher percentages of staff and ward occupancy rates increase the likelihood of bed non-availability.

Sources for information found in Appendix D: Konstvedt 1993; Weiss 1995; Laws 1995; Carey 1995; AHA 1993, Dunn 1995

NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT ALOS

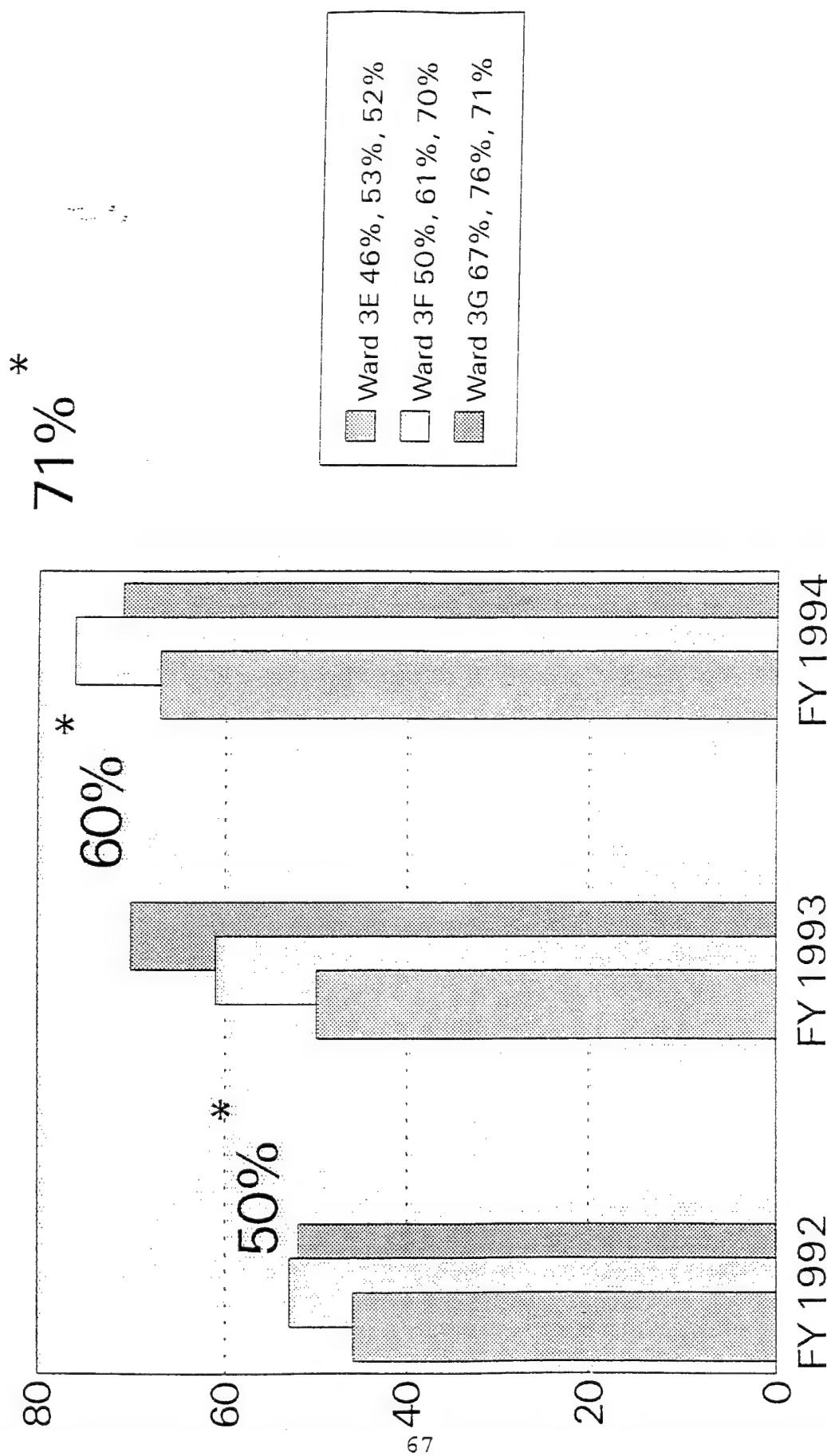
Average Length Of Stay (Days) FYs 92, 93, 94



Source: Resources Department NMC Portsmouth, Virginia

NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT

Percentage Occupancy Rate By Ward FYs 92, 93, 94

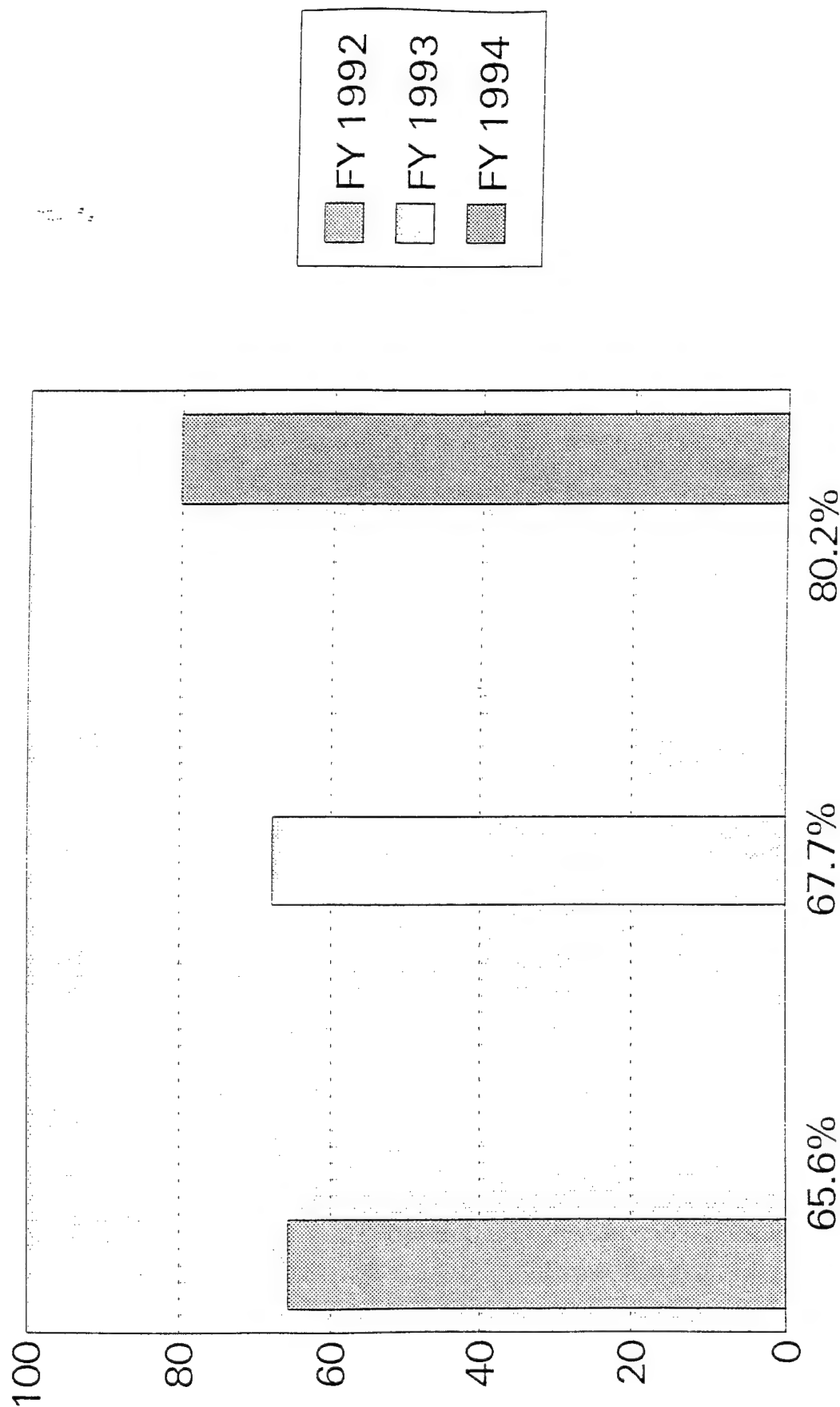


Source: Resources Department NMC Portsmouth, Virginia
 *Overall percentage occupancy rate.

Figure 2

NMC PORTSMOUTH, VIRGINIA OCCUPANCY RATE

Percentage Occupancy Rate By Psychiatric Service FYs 92, 93, 94



Source: Resources Department NMC Portsmouth, Virginia

Figure 3

MAY 19 1995 14:12

055 P02

+8043987416 NALMEDCTR PSYCH

DIRECTOR FOR MEDICAL SERVICES

PSYCHIATRY DEPARTMENT

FUNDING USAGE FY 92 - FY95

TYPE OF EXPENSE	FY92		FY93		FY94		FY95	
	INPATIENT	OUTPATIENT TOTAL	INPATIENT	OUTPATIENT TOTAL	INPATIENT	OUTPATIENT TOTAL	INPATIENT	OUTPATIENT TOTAL
MILITARY LABOR	52,537,646	41,237,026	43,819,672	82,799,697	51,535,084	84,334,781	4233,820	81,777,884
TRAVEL	0	0	0	245	1,117	1,362	1,145	3,368
SHIPPING	4	0	0	0	0	0	4	0
RENTALS/LEASES	0	0	0	0	0	0	12	0
EQUIPMENT MAINTENANCE	1,851	0	1,853	2,904	0	2,904	3,122	0
PURCHASED SERVICES/FEEES	379	179	559	20	413	507	5,976	375
CONSUMABLES	32,827	0	32,827	21,274	0	21,274	8,719	524
CIVILIAN LABOR	276,615	99,415	376,030	405,333	103,983	509,716	144	232,414
EQUIPMENT	26,775	0	26,775	29,490	0	39,490	648	2,304
PRINTING	3,275	112	3,387	2,392	292	2,684	4,466	5,022
TOTALS	97,874,372	81,166,732	94,261,104	83,771,825	81,640,889	94,912,716	9258,506	97,220,921
								97,278,927

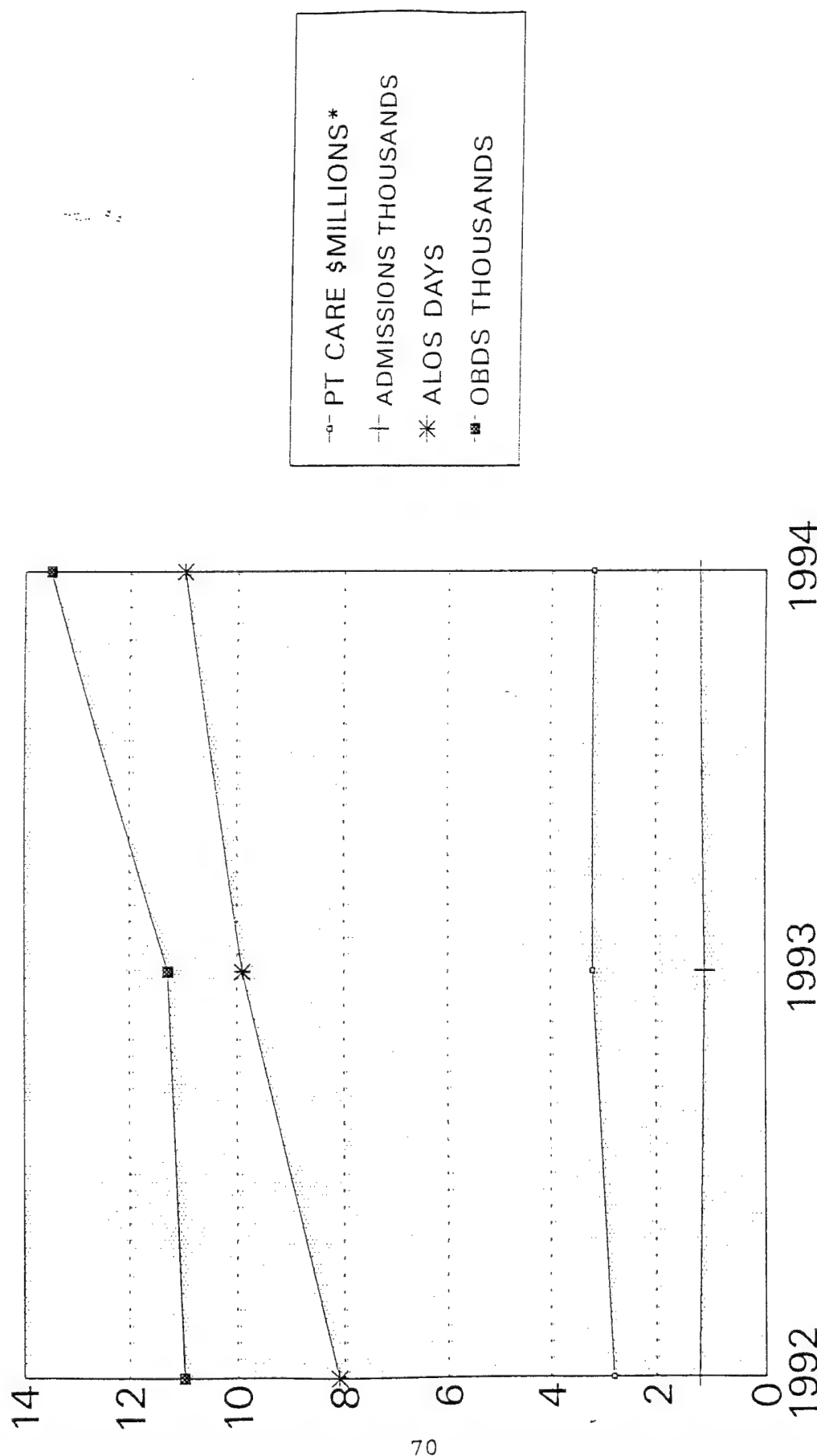
NOTES: (1) FY92 THROUGH FY94 DATA TAKEN FROM FISCAL YEAR UNIFORM MANAGEMENT REPORT - C APPLICATION (UWR-C).

(2) FY95 DATA IS AN ESTIMATED SPREAD BASED ON FIRST SIX MONTHS OF FY95 USAGE. IT SHOULD NOT BE ASSUMED THESE FIGURES ARE ACTUAL BUDGET AMOUNTS, AS DISCHARGING MISSION REQUIREMENTS MAY INCREASE/DECREASE ACTUAL COSTS.

NMC PORTSMOUTH VIRGINIA PSYCHIATRIC DEPARTMENT FUNDING USAGE

Trend In Patient Care Dollar Usage Compared To Trends In Admissions, ALOSs, OBDs, FYS 1992, 1993, 1994

Figure 5



*This figure includes military and civilian labor costs, purchased services/fees, and consumables. Deleted from the total were non patient care expenses for travel, shipping, rentals/leasing, equipment maintenance, equipment, and printing. Source: Dunn 1995

APPENDIX E

NMCP PSYCHIATRIC DEPARTMENT SUPPLEMENTAL CARE FUNDS

Actual and Projected Cost for Bed Non-availability

Supplemental care dollars for active duty client bed non-availability expended in FYs 1992 and 1993 was insignificant. However, \$53,600 (62 patients) was spent in FY 1994 (Bronson 1995).

In the first two quarters of FY 1995, \$39,300 has been billed and paid on a total of 80 patients for active duty bed non-availability (Bronson 1995). Once all bills are received, the expected final cost for these two quarters is \$129,700 (85% of \$152,540 which is the budgeted amount for supplemental psychiatric care) (fig 1) (Bronson 1995).

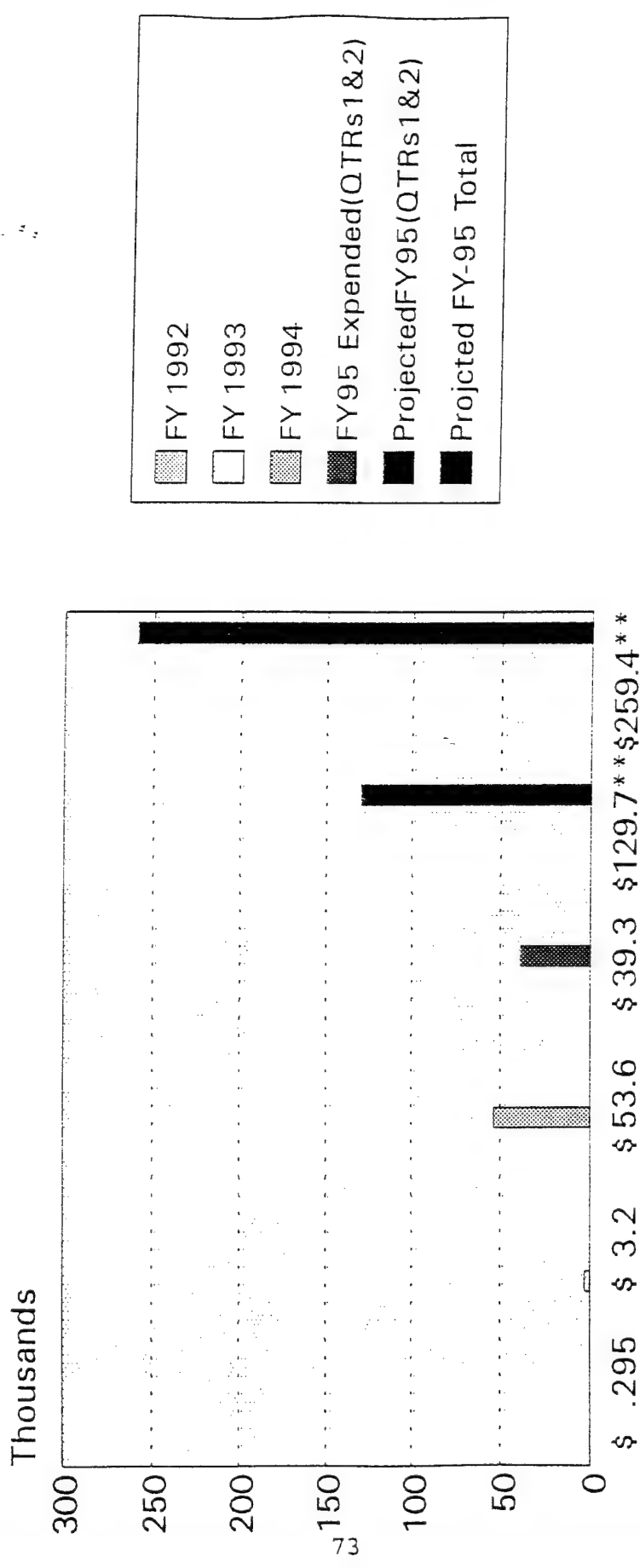
If this trend continues, the projected cost of bed non-availability for active duty patients for FY 1995 is \$259,400 ($\$129,700 \times 2$). This represents a 484% ($\$259,400 / \$53,600$) increase over FY 1994 supplemental care expenditures.

Conclusions

Higher ALOSs, increasing OBDs, and rising percentages of staff and ward occupancy rates are occurring within the Psychiatric Department. Taken along with OBDs filled by inpatient readmissions, these factors negatively influence the availability of beds for new admissions and might be related to increases in the use of supplemental funds.

Source for Appendix E: Bronson 1995

NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT SUPPLEMENTAL CARE FUNDS Actual And Projected Cost Due To Bed Non-availability At NMCP FYs 92, 93, 94, 95 *



Source: Resources Department NMC Portsmouth, Virginia; Bronson 1995

* Active duty military beneficiaries only.

** Based on 85% of the budgeted amount for FY 1995

APPENDIX F

NMCP PSYCHIATRIC DEPARTMENT READMISSION DATA

Psychiatric Readmissions

Inpatient psychiatric readmissions at NMCP for FYs 1993 and 1994 (FY 1992 data not available) were 126 (11.5% of total admissions; ALOS 14 days) and 99 (8% of total admissions; ALOS 13 days) patients respectively (figs 1&4) (Weiss 1995). These readmissions accounted for 1,752 OBDs (15.4% of total) and 1,291 OBDs (9.6% of total) in FYs 1993 and 1994 respectively (figs 2&3) (Weiss 1995).

Cost of OBDs Filled by Psychiatric Readmissions

Readmitted active duty beneficiaries treated as inpatients in NMCP cost \$450,264 (1,752 OBDs @ \$257/OBD) and \$331,787 (\$1,291 x \$257) respectively for FYs 1993 and 1994. Had they not been readmitted and treated as outpatients in Medical Holding Company (@ \$142/OBD - \$92/Day for Medical Hold jobs) the cost would have been \$87,600 and \$64,550 respectively. The more important point for FY 1994 data is that had these patients not been readmitted, the potential existed to open up OBDs that the Command otherwise had to spend \$53,600 for bed non-availability (fig 5).

If NMCP inpatient beds had not been available, FYs 1993 and 1994 comparative costs at Maryview Medical Center (@\$380/OBD) would have been \$665,000 and \$490,580 respectively. For Norfolk

Psychiatric Center (@\$505 + \$198/patient) the cost would have been \$909,708 and \$671,557 respectively (fig 5).

In FY 1993, 56% (71) of NMCP psychiatric patients inpatient readmissions returned within 30 days of initial discharge accounting for 722 OBDs (41% of total; \$185,554*; \$274,360**; \$378,668@; \$36,100#). Twenty percent (25) returned within 31-60 days accounting for 492 OBDs (28% of total; \$126,444*; \$186,960**; \$253,410@; \$24,600#). Ten percent (12) returned within 61-90 days accounting for 169 OBDs (10 % of total; \$43,433*; \$64,220**; \$87,721@; \$8,450#). Fourteen percent (18) returned within or greater than 91-120 days accounting for 369 OBDs (21% of total; \$94,833*; \$140,220**; \$189,909@; \$18,450#) (figs 1,2,5).

In FY 1994 66% (65) of readmitted patients returned within 30 days accounting for 555 OBDs (43 % of total; \$142,635*, \$210,900**; \$293,145@; \$27,750#). Ten percent (10) returned within 31-60 days accounting for 337 OBDs (26% of total; \$86,609*; \$128,060**; \$172,165@; \$16,850#). Six percent (6) returned within 61-90 days accounting for 69 OBDs (5% of total; \$17,773*; \$26,220**; \$36,033@; \$3,450). Eighteen percent (18) returned within or after 91-120 days accounting for 330 OBDs (26 % of total; \$84,810*; \$125,400**; \$170,214@, \$16,500#) (figs 1,2,5).

Conclusions

Psychiatric readmission OBDs are costing NMCP a significant amount of money. Treatment of these clients is much less expensive if they can be treated as outpatients.

*NMCP rate of \$257/day.

**Maryview Medical Center rate of \$380/day.

@Norfolk Psychiatric Center rate of \$505/day plus \$198/patient.

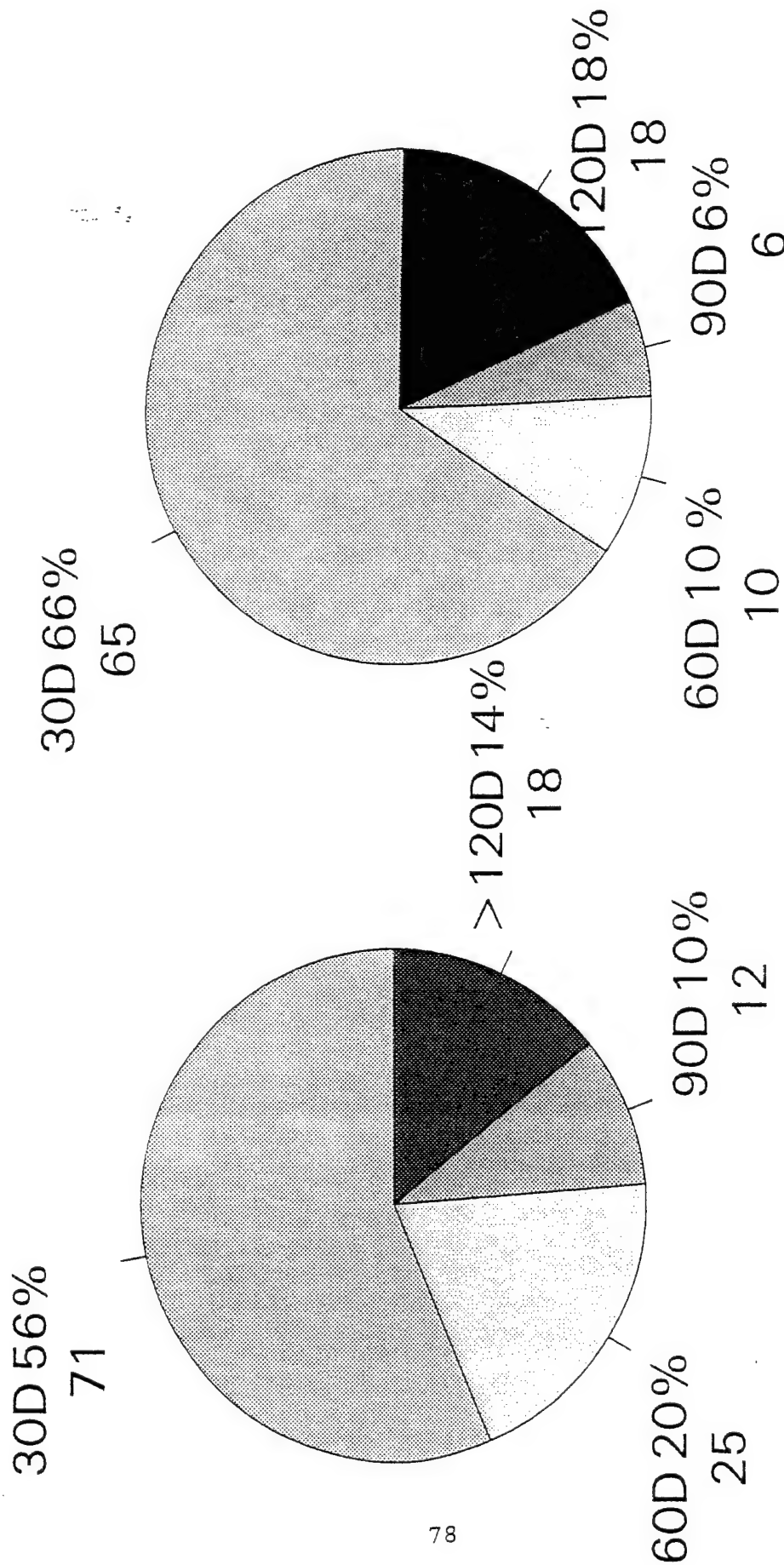
#Medical Holding Company net rate of \$50/day.

Sources for information in Appendix F: Weiss 1995; Bronson 1995

NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT READMISSIONS

Percentage Of Readmissions Within 30*, 60**, 90@, And > 120# Days FYs 93, 94

Figure 1



FY 93

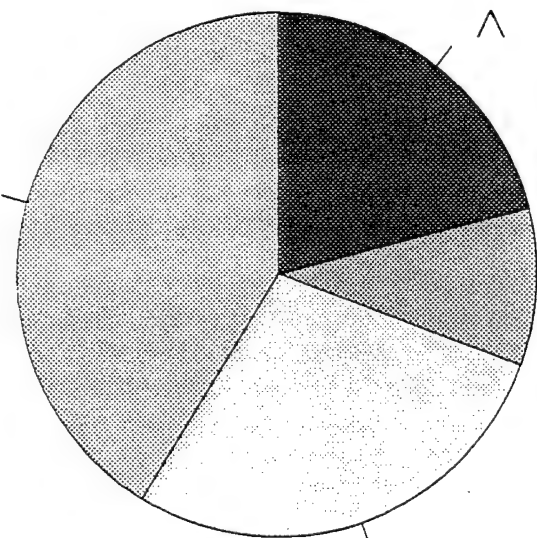
FY 94

Source: Resources Department NMC Portsmouth, Virginia
 * 1-30 days; ** 31-60 days; @ 61-90 days; # 91-120 days or more.

NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT READMISSIONS

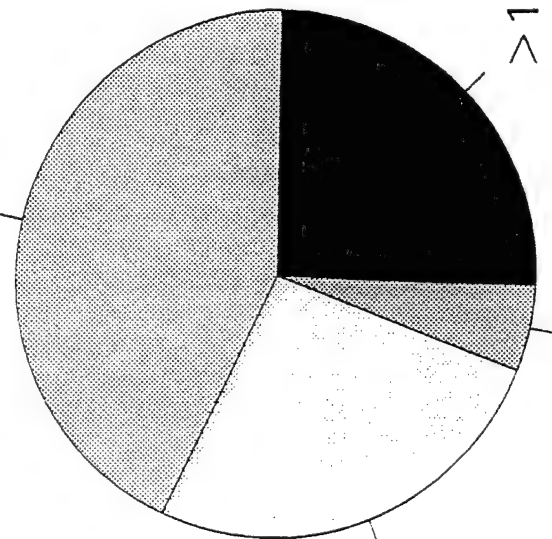
OBDs For Readmissions Within 30*, 60**, 90@, and >120# Days FYs 93, 94

30D 41%
722



FY 93

30D 43%
555



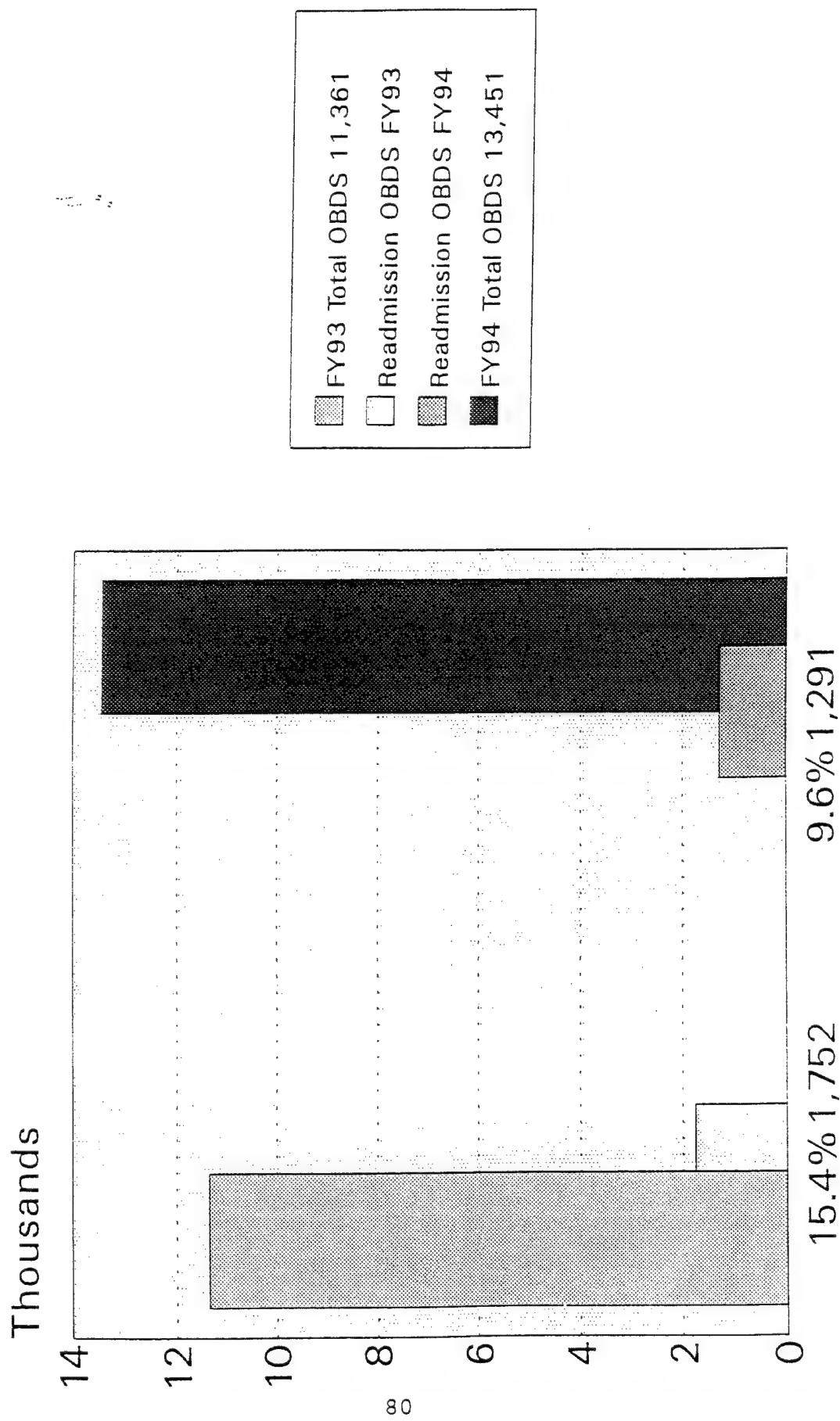
FY 94

Source: Resources Department NMC Portsmouth, Virginia

* 1-30 days; ** 31-60 days; @ 61-90 days; # 91-120 days or more.

NMC PORTSMOUTH VIRGINIA PSYCHIATRIC DEPARTMENT READMISSIONS

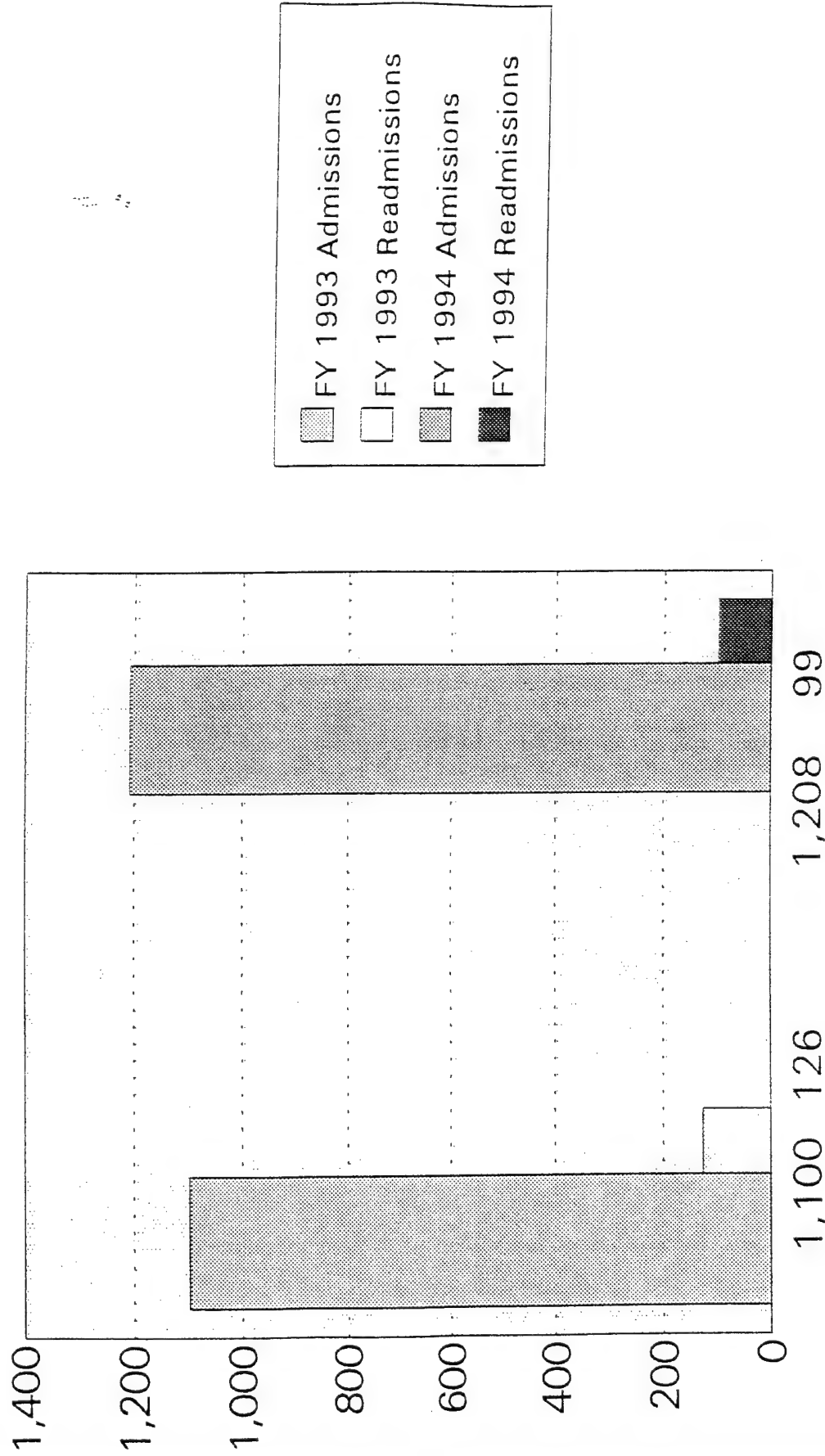
Occupied Bed Days Accounted for by Readmissions FYs 93, 94



Source: Resources Department NMC Portsmouth, Virginia

NMC PORTSMOUTH VIRGINIA PSYCHIATRIC DEPARTMENT READMISSIONS

Inpatient Readmissions FY 93, 94



Source: Resources Department NMC Portsmouth, Virginia

NMC PORTSMOUTH, VIRGINIA COST OF READMISSION OCCUPIED BED DAYS

Cost Of OBDs Filled By Psychiatric Readmissions FYs 94, 95

	NMCP \$257/DAY	MARYVIEW \$380/DAY	NORFOLK PSYCH \$505/DAY + \$198/PT	MED HOLD DAILY RATE (\$142) MINUS THE DAILY RATE MED HOLD JOBS*(\$92) = NET \$50
FY 1993				
Readmitted Within 1-30 Days (722 OBDs)	\$185,554	\$274,360	\$378,668	\$36,100
Readmitted Within 31-60 Days (492 OBDs)	\$126,444	\$186,960	\$253,410	\$24,600
Readmitted Within 61-90 Days (169 OBDs)	\$43,433	\$64,220	\$87,721	\$8,450
Readmitted Within Or After 91-120 Days (369 OBDs)	\$94,833	\$140,220	\$189,909	\$18,450
FY 1993 Readmission OBDs (1,752)	\$450,264	\$665,760	\$909,708	\$87,600
FY 1994				
Readmitted Within 1-30 Days (555 OBDs)	\$142,635	\$210,900	\$293,145	\$27,750
Readmitted Within 31-60 Days (337 OBDs)	\$86,609	\$128,060	\$172,105	\$16,850
Readmitted Within 61-90 Days (169 OBDs)	\$17,733	\$26,220	\$36,033	\$3,450
Readmitted Within Or After 91-120 Days (330 OBDs)	\$84,810	\$125,400	\$170,214	\$16,500
FY 1994 Readmission OBDs (1,291)	\$331,787	\$490,580	\$671,557	\$64,550

82

Costing based on daily rates at NMCP, Maryview Med. Cen., Norfolk Psychiatric Center, Medical Hold
 *Daily equivalent for Medical Holding Company Jobs
 Source: Resources Department, NMC Portsmouth, Virginia

APPENDIX G

MEDICAL BOARDS PROCESS

Navy-wide Medical Boards Process

Guidelines for the Navy-wide Medical Boards process are covered in chapter 18 of the Manual of The Medical Department.

"Medical Boards identify active duty members whose physical qualifications to continue on full duty is in doubt or whose physical limitations preclude their return to full duty within a reasonable period of time. They are convened to evaluate and report on the diagnosis; prognosis for return to full duty; plan for further treatment, rehabilitation, or convalescence; estimate of the length of further disability; and medical recommendation for disposition of such members" (BUMED 1993).

"The findings of a Medical Board may affirm the physical qualification of a member for assignment to duty (fit for duty). A determination of "unfit for duty" is not within the cognizance of a local Medical Board. This determination is made only by the Physical Evaluation Board (PEB) upon review" (BUMED 1993).
Psychiatric patients awaiting PEBs are the only clients looked at for this study because all CPC patients fall into this category.

Medical Boards Process at NMCP

The medical PEB process for the NMCP Psychiatry Department is a two tiered program. It consists of an intra-departmental process and an external departmental process operated by the Patient Administration Department (Mitchell 1995; Sims 1995;

Rivera 1994, 1995).

The intra-departmental PEB process (fig 1) should average 10 - 20 days (Rivera 1994, 1995). An internal physician sponsored audit of 20 PEB patients in 1/95 (Kemp 1995) found that the internal Psychiatric Department Medical Board process was prolonged an average of 28 days with a range of 8 - 60 days because of delays in obtaining physicians' signatures on the boards. The average time for staff physicians and resident physicians to process their parts of the board was 23 and 31 days respectively. The audit also found that the average time awaiting administrative processing from the Patient Administration's Medical Boards branch was 10.5 days (Kemp 1995). Final results of this study were not available for inclusion in this appendix.

A second February 1994 CPC audit (fig 2) involved 35 PEB cases (Rivera 1994, 1995). This analysis found that the total time from dictation of the Medical Board by the attending physician (the beginning of the intra-departmental process) to obtaining three physicians' signatures (the final step in the intra-departmental process) averaged 32 days with a range of 16 to 77 days.

A third audit (fig 3) of 12 cases awaiting PEBs by the CPC program was taken in May of 1994. It found that the PEB process added an average of 34 days to patients' stay in the Medical Holding Company.

The NMCP Command Medical Board process (fig 4) for PEBs is

limited by instruction to be completed by the Medical Boards section of Patient Administration and routed for disposition within 20 days (Mitchell 1995). Under the best conditions, this process for psychiatric patients takes 10 working days (Rivera 1994, 1995; Kemp 1995). Under less than optimal conditions, the process can take as many as 90 days or more (Mitchell 1995).

Once completed locally, boards to determine "fitness for duty" must be routed to the Physical Evaluation Board (PEB) in Arlington, VA or its equivalent in the other federal services. All psychiatric patients managed in the CPC are awaiting PEBs (Rivera 1994, 1995).

The PEB is diagramed in this appendix (fig 5). As stated before, it is the Navy-wide evaluator for boards involving decisions for "fitness for duty" (Mitchell 1995; Rivera 1994; Simms 1995). This process should take 4 - 6 weeks to complete but can actually averages 90 days but can take as long as 120 days because of backlogs and PEB staff limitations (Mitchell 1995; Rivera 1994; Simms 1995).

Conclusions

Given these figures, total time for PEB completion is 133 days (4.6 months). The length of time to process a PEB for those psychiatric patients that will be discharged from the military extends the amount of time they remain on active duty as outpatients. This increases their risk for inpatient readmission

(Rivera 1994, 1995).

Page 87

Sources for information found in Appendix G: Rivera 1994, 1995;
Mitchell 1995; Sims 1995; Kemp 1995, BUMED 1993

INTRA-DEPARTMENTAL PSYCHIATRIC MEDICAL BOARDS PROCESS

- <— This
1. Board is dictated and typed in the Psychiatry Dept. | process
 2. 3 doctors sign it: 2-5 days. | averages
 3. Goes to Medical Boards (Patient Administration) | about 38
for a cover sheet: 2-8 days. | days
 4. Returns to Psychiatry for 3 doctors signatures: <— actual.
2-5 days.
 5. Signed board returns to Medical Boards (Patient
Administration) for patient's signature: 2-3 days after the
doctors sign it. Patients have 15 days to rebut the board.
 6. Commanding Officer signs: 2-3 days.
 7. To Arlington, Virginia to Physical Evaluation <— 3
Board: 4-6 weeks. | mos.
| actual.
<—
 8. Findings come back: 1-2 days patient may sign.
Rebut/full and Fair Hearing: 15 days to rebut/
ask for hearing.
 9. Home awaiting orders (HAO) - await authorization for
discharge or retirement: 1 week to process the HAO chit; 10 days
for PSD to complete paperwork/authorization takes about 1 month
(takes 6-8 weeks for final separation authority).

INJURY EXISTING PRIOR TO ENTRY (EPTE)

1. Steps 1-6 are the same as above: 1-1 1/2 months.
 2. PSD notified to process administrative separation: 10 days.
- (Source: Rivera 1994)

13 FEB 1994

MEMORANDUM

From: Continuity of Psychiatric Care Program
To: Department Head, Psychiatry

Subj: LENGTHY TIME FOR INTRA-DEPARTMENTAL PROCESSING OF PEB'S

1. A review of 35 cases of patients awaiting PEBs following hospitalization shows that many weeks elapse before the PEB is delivered to Medical Boards for the member's signature. Of the 35 cases 23 were from 3G, 8 cases from 3F, and 4 cases from 3E.

2. Review of these 35 cases show:

* Time from patient being admitted to the time PEB is dictated is 40 days as a mean. Range is from 3 to 102 days.

UNIT	MEAN	RANGE	PEB DICTATED PRIOR TO DC
3G	33 days	3 - 87	17 out of 23
3F	60 days	23 - 102	3 out of 8
3E	40 days	29 - 51	3 out of 4
DEPT	40 days	3 - 102	20 out of 35

* Time from PEB dictated and obtaining three physicians' signatures is 32 days as a mean. Range is from 16 to 77 days.

UNIT	MEAN	RANGE
3G	33 days	18 - 62
3F	25 days	25 - 39
3E	36 days	16 - 77

* Total time from admit to completed PEB sent to Patient Affairs is 72 day as a mean. Ranging from 23 days to 130 days.

UNIT	MEAN	RANGE
3G	66 days	43 - 124
3F	85 days	23 - 130
3E	77 days	45 - 128
DEPT	72 days	23 - 130

3. During this review, it was noted that some time is lost in the bureaucracy of Patient Affairs. The amount of days it takes a PEB to return from Patient Affairs with a cover sheet for final review is 10 days as a mean. Range is from 4 to 38 days, 11 boards were returned within one week.

DATE: 27 May 94
FROM: Continuity of Psychiatric Care program

SUBJ: Lengthy time for intra-departmental processing of PEBs

1. A review of 12 cases of patients awaiting PEBs following hospitalization shows that many weeks elapse before the PEB is delivered to Medical Boards for the member's signature.

2. Review of these 12 cases show:

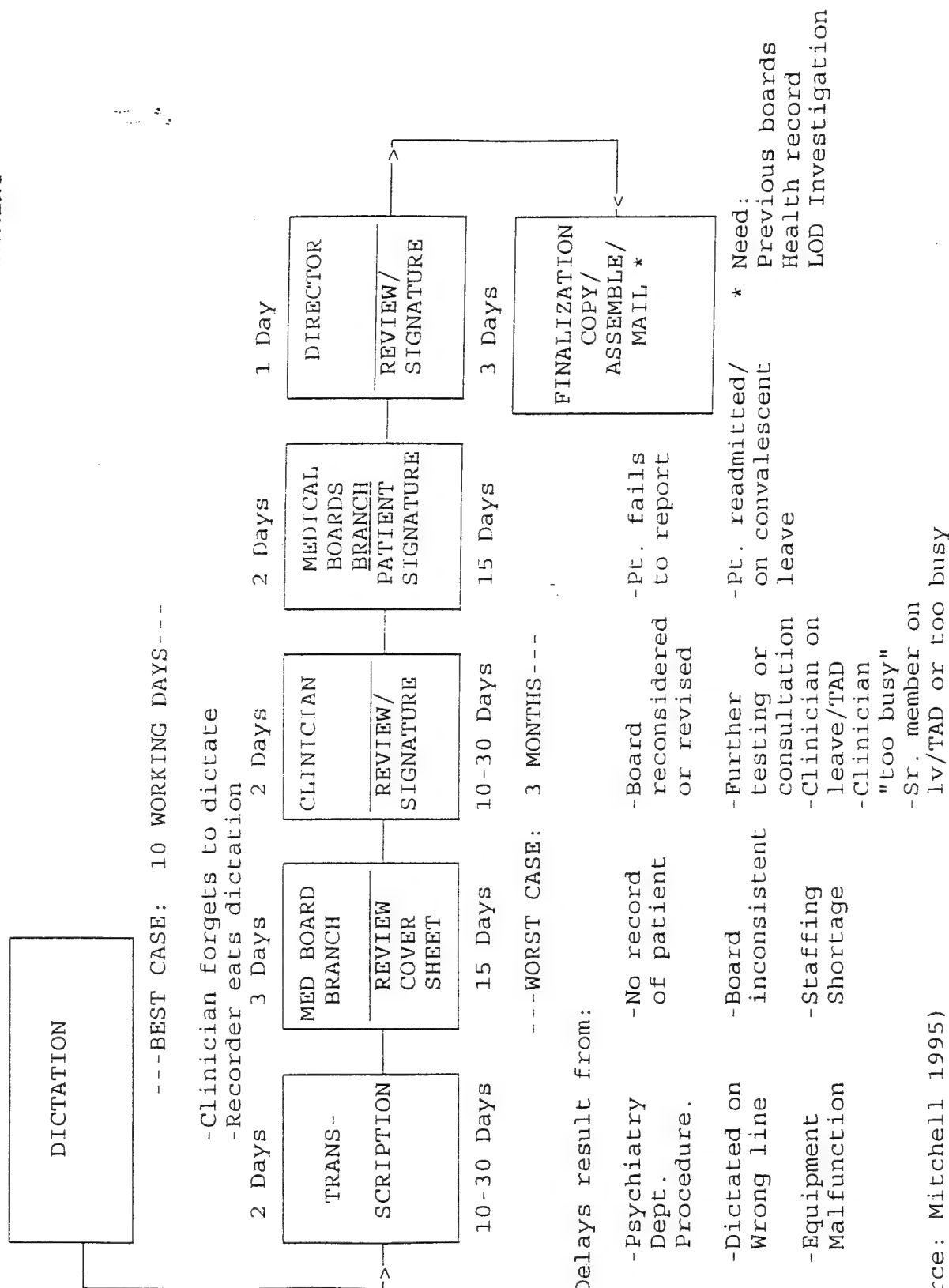
Time from PEB being dictated and obtaining three physicians' signatures is: 18.7 days as a mean (Range: 7-34 days).

Time from PEB with cover sheet being returned from Medical Boards and obtaining three physicians' signatures on the cover sheet is: 16.2 days as a mean (Range 3-43 days).

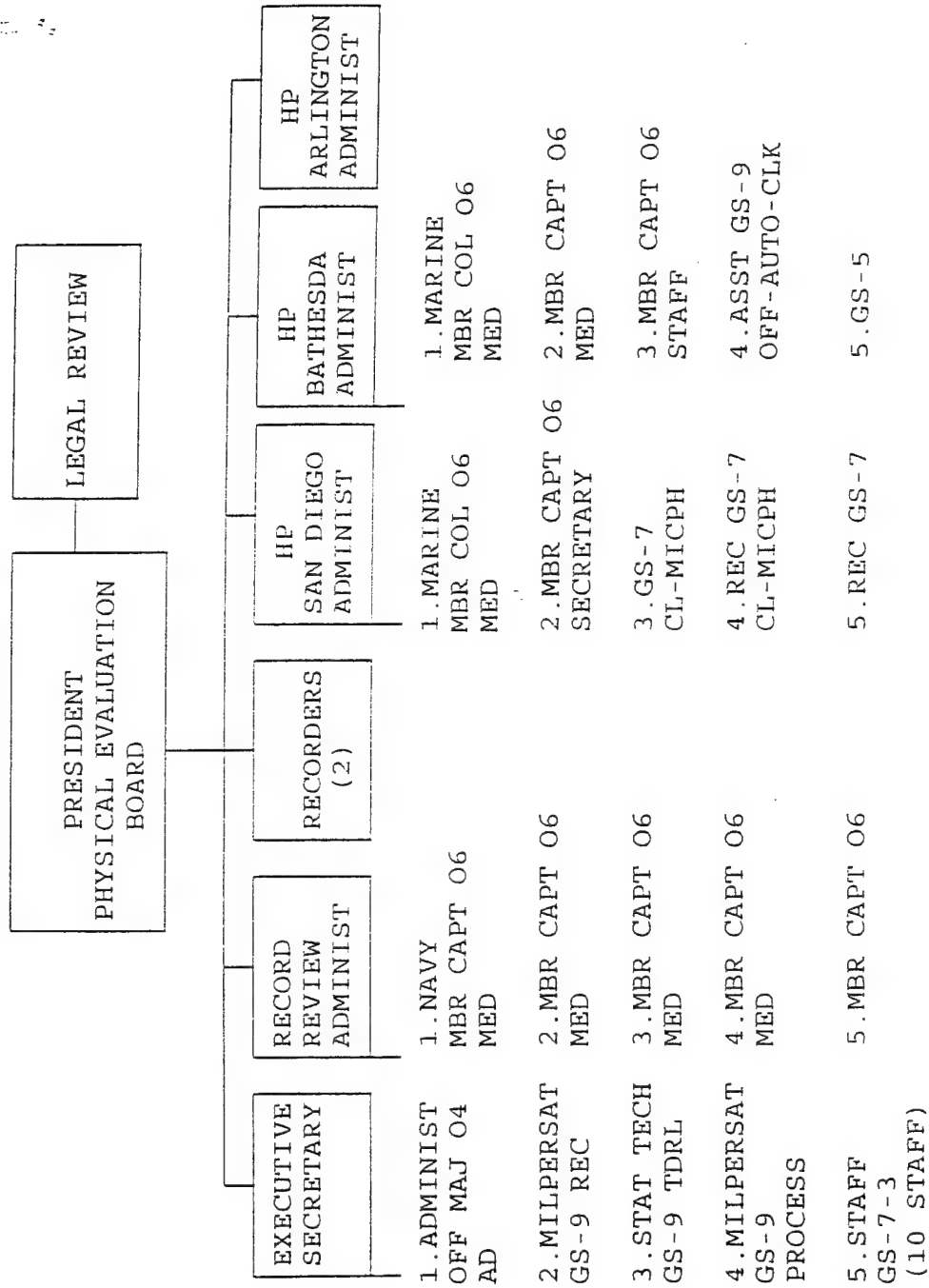
3. This adds at least 34 days to an average stay in Medical Holding Company, a suboptimal setting that is already overcrowded. Further concerns with this additional month or more of waiting for signatures are: obvious impact upon quality of life for these individuals who are in extended limbo, delay in reintegration into their community of choice, prolonged stay on active duty when member is already deemed impaired, strained relations with Medical Holding Company who want to send clients to TPU ASAR, and potential strain on resources.
4. Granted, some time is lost in the bureaucracy of Patient Affairs, but the majority of the time lag can be attributed to the two trips the PEB makes along the intra-departmental circuit to obtain three physicians' signatures.
5. I submit this for your review in hopes that PEBs will be handled more expeditiously so that improved quality of life will be achieved for our clients.

S. M. Rivera
S. M. Rivera
CDR, NC, USN

MEDICAL BOARD PROCESSING PATIENT ADMINISTRATION DEPARTMENT



PHYSICAL EVALUATION BOARD (BUPERS) ARLINGTON, VA
(4 - 6 WEEKS TO PROCESS, 4 - 6 MONTHS ACTUAL)



(Source: Mitchell 1995, Rivera 1994)

APPENDIX H

CONTINUITY OF PSYCHIATRIC CARE PROGRAM READMISSIONS

Departments of Psychiatry and Psychiatric Nursing

Process Improvement Audit

The Departments of Psychiatry and Psychiatric Nursing as part of their process improvement program identified a readmission rate for patients discharged to Medical Holding Company with serious Axis I type disorders was 86.6% (13 of 15 readmitted) in 1993. In calendar year 1994 this population under case management was studied (Rivera 1994) and found to have a readmission rate of 11.2% (7 of 62 readmitted). All of these patients readmitted were awaiting Medical Boards (fig 1) (Rivera 1994, 1995).

Review of FY 1994 CPC Patients

According to CPC log entries cross referenced with data in the NMCP Resources Department, the CPC managed 48 patients in FY 1994. Thirteen of these 48 (27%; ALOS 19 days) CPC patients were readmitted. CPC patients accounted for 13 of 99 (13%) total readmissions (fig 2&4). During this same time period, CPC clients accounted for 251 of 1,291 OBDs (19.5%) due to readmissions (fig 3&5). Overall, CPC patients readmitted accounted for 1.9% of 13,458 total psychiatric OBDs (Weiss 1995).

Projected Readmission OBDs Without Case Management for FY 1994

Based on findings from the Axis I study described above, the expected number of readmissions without case management for CPC targeted clients for FY 1994 would be 41 ($48 \times 86.6\%$). Within the population targeted by CPC in FY 1994, the ALOS for readmissions was 19 days (251 OBDs/13 readmissions) (Weiss 1995). Without case management, 779 (41×19) OBDs would be expected. This is 528 OBDs over the actual total of 251. On average the cost for these readmissions without case management would have been \$177,298 with a range of \$109,296-\$248,358 for FY 1994 (fig 6).

Projected Savings With Reduced Medical Board Processing Time

Continuity of Psychiatric Care FY 1994 patients readmitted within 1-30 days, 31-60 days, 61-90 days and within or after 91-120 days were 5 (69 OBDs), 0, 2 (15 OBDs), and 6 (167 OBDs) respectively (figs 4&5). Had the Medical Board process been completed before 60 days, there was potential for a savings of 182 OBDs. This costs out to a potential average savings of \$69,809 with a range of \$46,774-\$93,494 (fig 7).

The average savings total is derived from the cost of potential readmission OBDs at the average daily rate for NMCP, Maryview Medical Center, and Norfolk Psychiatric Center.

Conclusions

There is no way to tell where potential readmissions would have been treated. However, given the upward trends in OBDs, occupancy percentages, the fact that 62 active duty patients (\$53,600) were sent to civilian institutions for bed non-availability in FY 1994, and higher ALOSs in the Psychiatric Department, a large number of these avoided readmission OBDs would probably have been spent in outside institutions due to bed non-availability. The potential for additional savings exists if the Medical Boards process can be stream-lined and completed before 60 days in conjunction with CPC case management.

Sources for information found in Appendix H: Weiss 1995; Rivera 1994, 1995

Continuity of Psychiatric Care:

Process Improvements, 10 JAN -30 NOV 94

Indicator chosen for 1994. During the initial start up of CPC, the indicator chosen was READMISSION RATE. QUALITATIVE issues (i.e., patients' levels of functioning, decrease in symptomatology) were decided to be too complex to accurately assess during the beginning phase of this Case Management type program. Therefore, the global quantitative measure of READMISSION RATE was chosen to evaluate CPC program effectiveness.

1993 Readmission rate. The departments of psychiatry and psychiatric nursing noted a sharp increase in readmissions for patients with serious Axis I type diagnoses, primarily serious thought and mood disorders, in 1993. The 3G Division Officer, LT Laraway, did a retrospective study during a five month period (approximately MAY-NOV 93) for patients with serious thought or mood disorders who were discharged from 3G to Medical Holding Company. Of 15 patients discharged, 13 were readmitted. This is a readmission rate of 86.6%.

Presumed variable. The presumed cause of this high readmission rate in 1993 is the reduction of unit 2G, a 20-bed Psychosocial Rehabilitation unit from 1989 to 1992, to a 5 bed 650 square foot Psychiatric Medical Holding Unit in the summer of 1992. This 5 bed unit was closed in early 1993 because of severe living space shortage for outpatients contributing to increased psychopathology and readmissions and staffing shortage. Aftercare services to discharged psychiatric patients consisted of weekly individual or group contact with their outpatient physician.

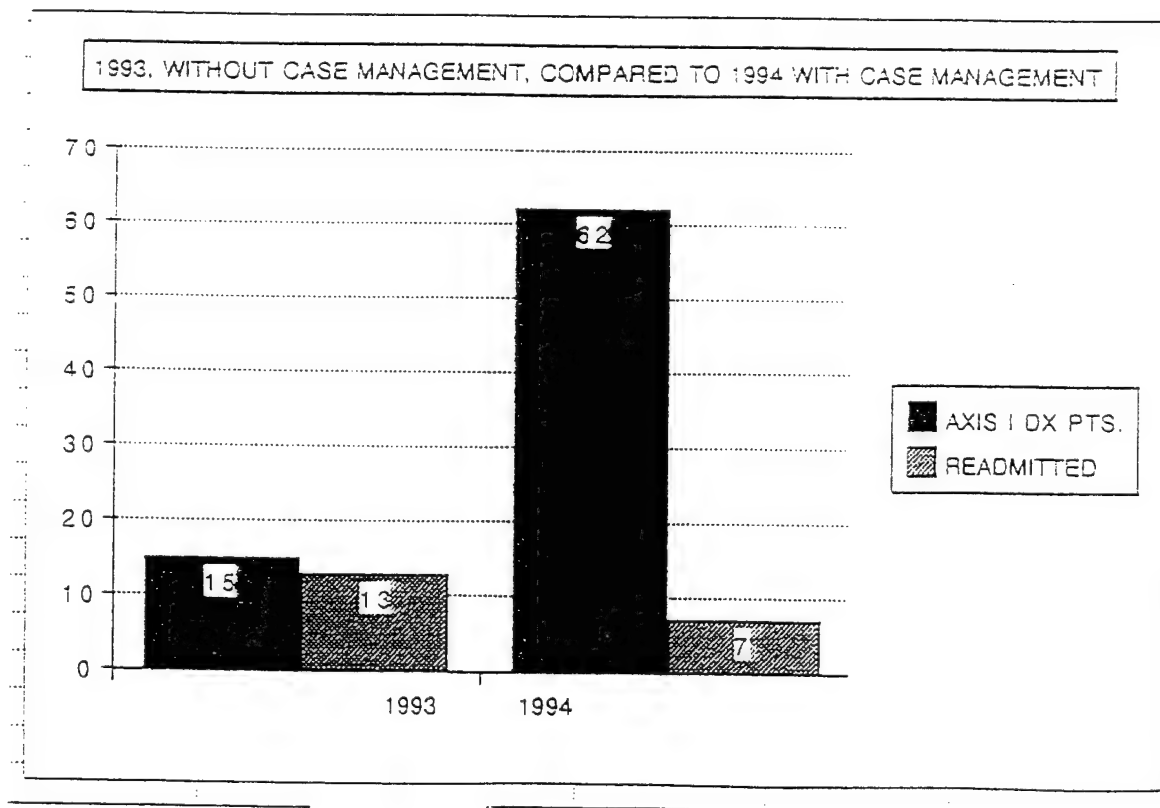
Limitations of Readmission Rate as an indicator. Because psychiatric illness is chronic and treatment is based upon coping with symptoms and life rather than curing, re-hospitalization is expected during most patients' lifetimes. Therefore, occasional readmissions should not be necessarily viewed as "failure" but a need for periodic "tune up," particularly with other stressors. But the extraordinarily high readmission rate in 1993 is far higher than usual.

The CPC Difference: Support and Skills. Psychiatric rehabilitation literature demonstrates that two variables predict successful adaptation for patients with serious mental illness: supportive environment and skills to manage symptoms and living in the environment. The concept of Continuity of Psychiatric Care is to provide a supportive environment (in the social, living and work environments) and foster skills development for managing symptoms effectively (via medications and coping strategies).

The following table shows data for a 5 month period in 1993 and 11 months of 1994.

YEAR:	1993: Discharged from 3G to Medical Hold Co.	1994: Followed by CPC
Axis I DX Patients (serious thought or mood disorder)	15	62
Number of these patients who were readmitted	13	7
Readmission rate:	86.6%	11.2%

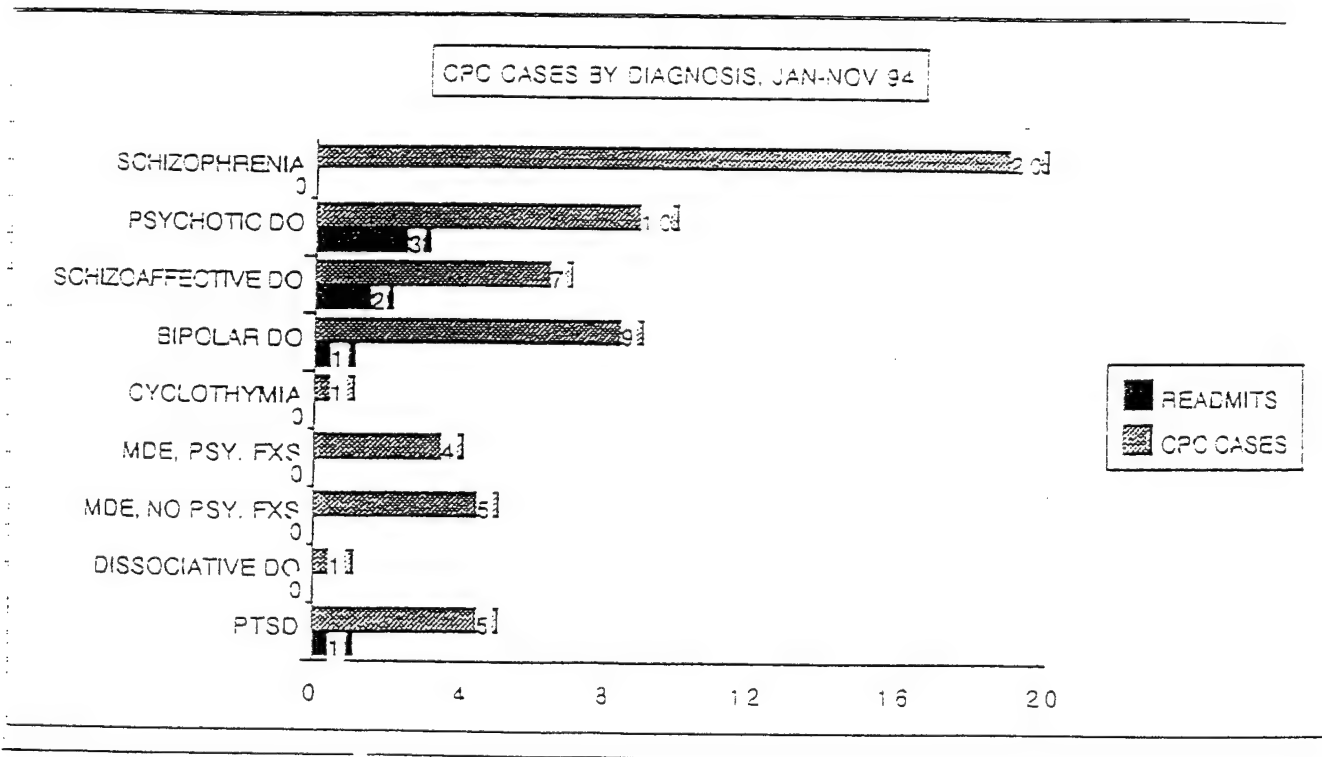
The same data is presented in this bar graph:



Make-up of CPC's 1994 Caseload: When CPC commenced 10 JAN 94, the target population was patients with thought disorders. The average weekly case load increased from 15 in the first 6 months to 28 patients receiving intensive case management type services from CPC. Additionally, clinical support via a psychiatric technician in Medical Holding Company provides direct services to 30 residents (many are already covered by CPC) as well as psychiatric triage services as needed to all of Medical Holding Company. With the increased number of consumers of CPC services, the diversity of cases has increased to include persons without formal thought disorders.

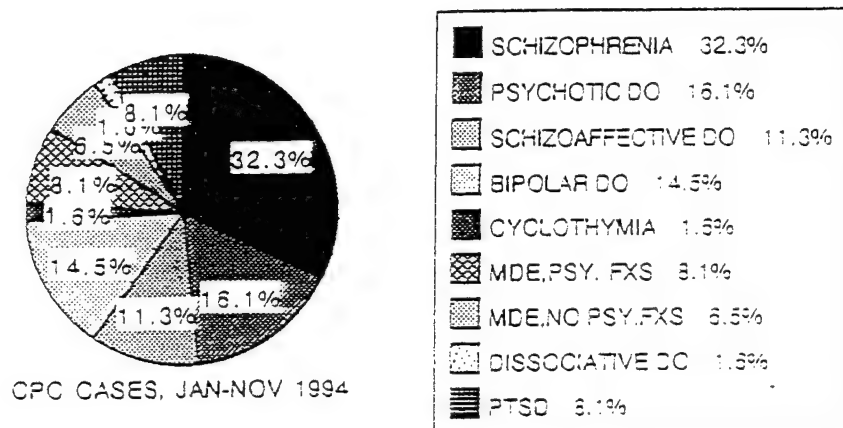
The following chart describes the caseload by diagnosis. The number of readmissions for each diagnosis are also stated.

Note: For all 20 patients with schizophrenia who were followed by CPC, none were readmitted.



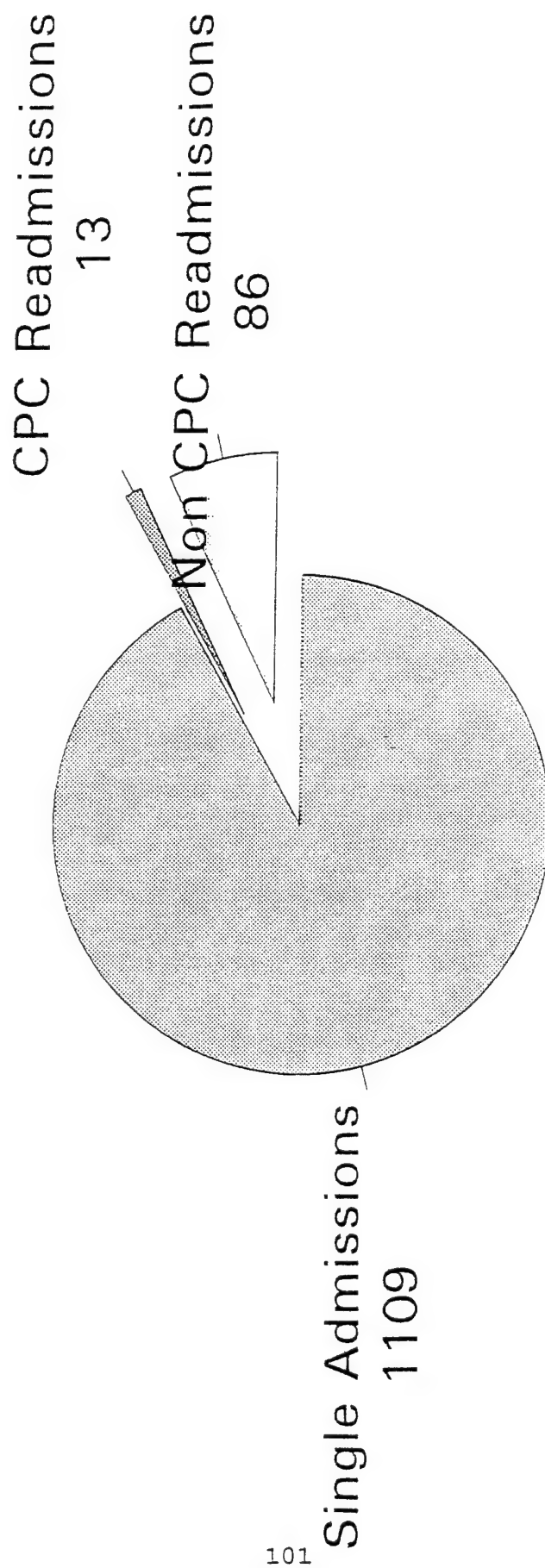
This chart breaks down the diagnostic categories into overall percentage of total case management caseload.

CPC CASES BY DIAGNOSIS, JAN-NOV 1994



NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT READMISSIONS

Continuity Of Psychiatric Care Readmissions FY 94

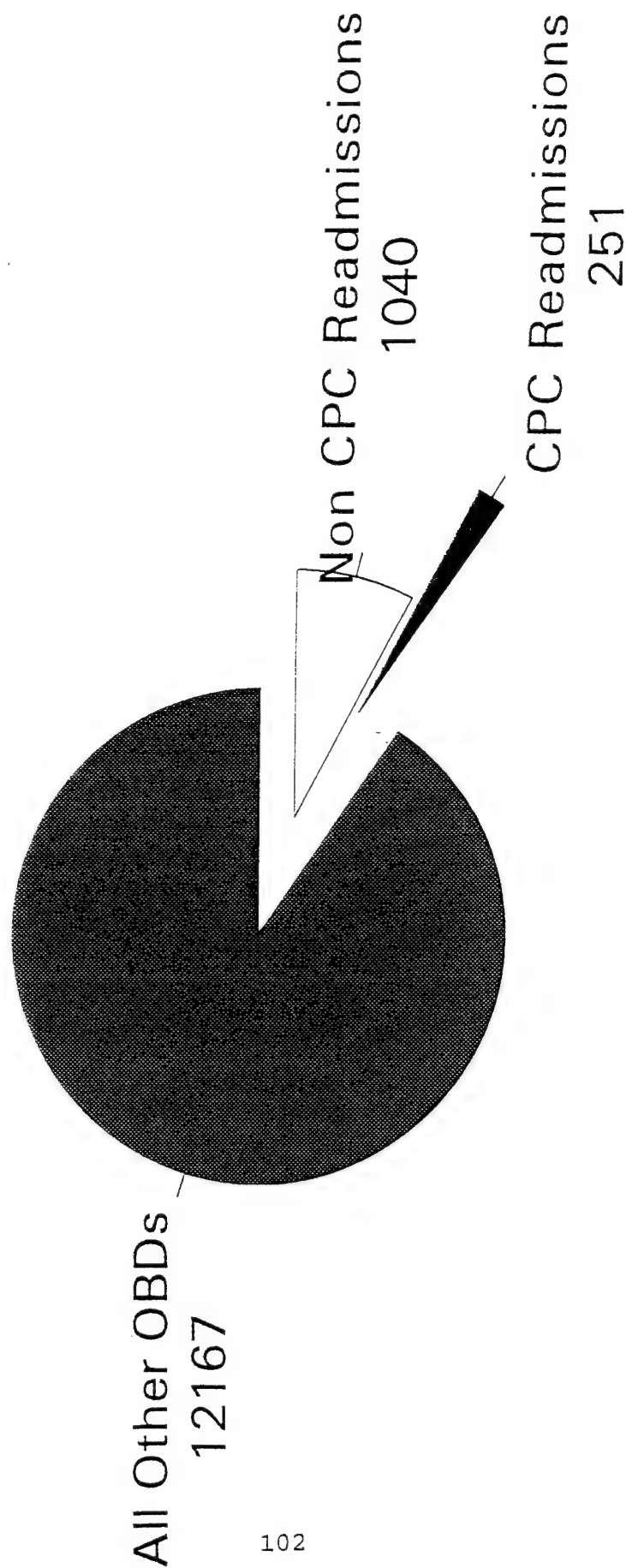


Total Admissions 1208

Source: Resources Department NMC Portsmouth, Virginia

NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT READMISSIONS

Continuity of Psychiatric Care Readmission Occupied Bed Days FY 94



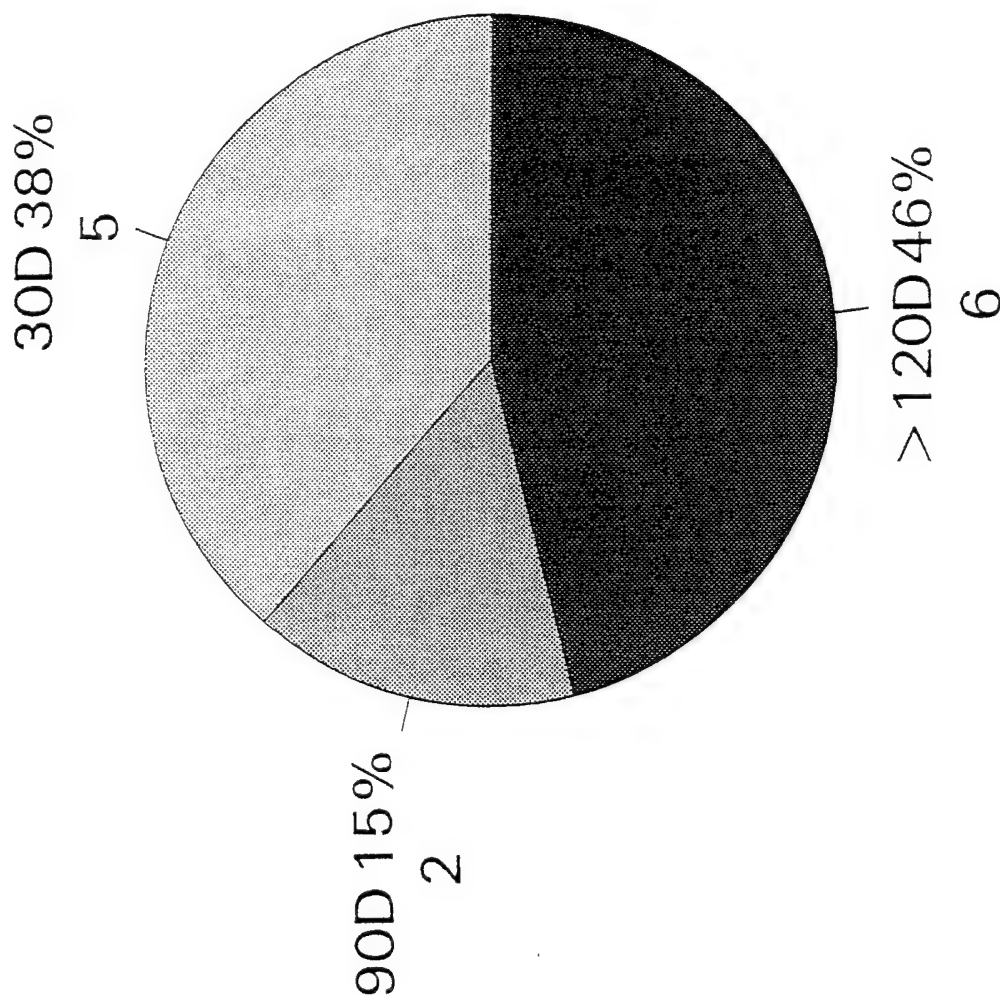
102

Figure 3

Source: CPC Log; Resources Department NMC Portsmouth, Virginia

NMC PORTSMOUTH, VIRGINIA CONTINUITY OF PSYCHIATRIC CARE READMISSIONS

Percentage Of Readmissions Within 30*, 60** & 90@, And >120# Days FY 93, 94

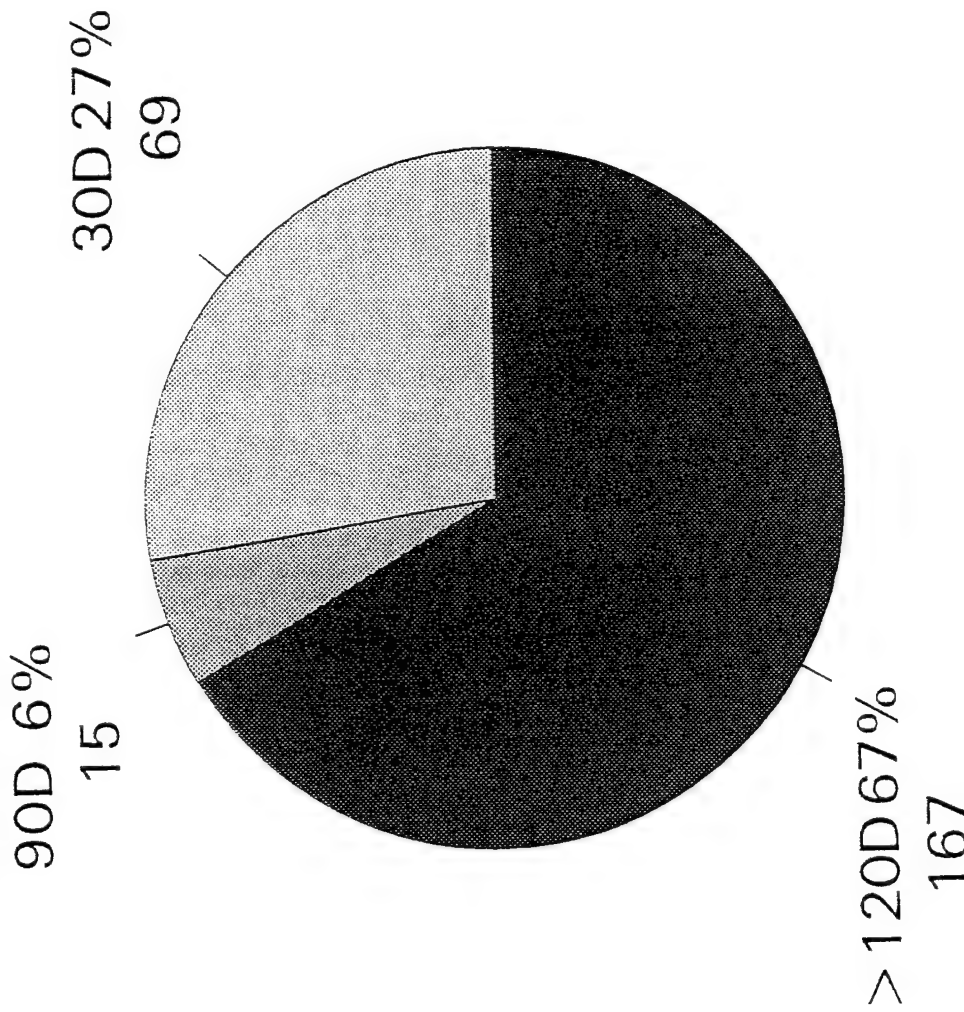


FY 94

Source: Resources Department NMC Portsmouth, Virginia
* 1-30 days; ** 31-60 days; @ 61-90 days; #91-120 days or more.
& There were no readmissions for 60 days.

NMC PORTSMOUTH, VIRGINIA CONTINUITY OF PSYCHIATRIC CARE READMISSIONS

Occupied Bed Days Accounted For By Readmissions Within 30*, 60** & 90@, and >120# Days FY 94



FY 94

Source: Resources Department NMC Portsmouth, Virginia
* 1-30 days; ** 31-60 days; @ 61-90 days; # 91-120 days.
& There were no readmissions for 60 days.

NMC PORTSMOUTH, VIRGINIA CONTINUITY OF PSYCHIATRIC CARE PROGRAM

Cost Benefit Of Readmission Occupied Bed Days Saved By Case Management FY 1994

ALL TOTALS ARE MINUS THE NET MED HOLD RATE	NMCP \$257/DAY	MARYVIEW MEDICAL CENTER \$280/DAY	NORFOLK PSYCH \$505/DAY + \$109/PT	MED HOLD* NET \$142/DAY-\$92/DAY RECOVERED	COST RECOVERED FOR JOBS (E3 EQUIVALENT) HELD BY MED HOLD PSYCH PATIENTS (\$11.45/H-\$92/DAY)
Expected ORRs @ ALOS of 18Days(CPC Norm) (52R ORRS)	\$135,606	\$200,840	\$260,640	\$74,976	\$48,576
Cost Without Case management	\$ 20,400	\$ 20,400	\$ 8,118 \$ 20,400	\$48,576	
Average Savings With Case Management	\$105,206	\$174,240	\$240,358	\$26,400	
	\$177,206@				

105

*Med Hold Rate(NET) Represents Command Costs For
CPC Patients Had They Not Been Readmitted
@Average Of ORR Costs At NMCP, Maryview MED CEN
And Norfolk Psychiatric Center

Based on the difference in the expected readmission OBDs for CPC patients had they been unmanaged and actual CPC readmission OBDs. Costing is based on daily rates at NMCP, Maryview Med. Cen., Norfolk Psych. Cen., and Med Hold (Net). Source: Resources and Pt. Admin. Depts. NMCP; Bronson 1995.

NMC PORTSMOUTH, VIRGINIA CONTINUITY OF PSYCHIATRIC CARE PROGRAM

Potential Benefit For Readmission OBDs Saved If Med Board Process Cut To < 60D Coordinated With CPC

	NMCP \$257/DAY	MARYVIEW \$380/DAY	NORFOLK PSYCH \$505/DAY + \$198/PT	MED HOLD* NET \$142/DAY-\$92/DAY RECOUPED
OBDs For CPC Patients Readmitted After 60 Days (182 OBDs)	\$46,774	\$69,160	\$91,910 + \$ 1,584	No cost for Medical Holding Company. These patients would be processed out of the system and not require Medical Holding space
Potential Cost Savings Benefit	\$46,774	\$69,160	\$93,494	
Average Potential Cost Savings Benefit	\$69,809			

Costing based on daily rates at NMCP, Maryview Med. Cen., and Norfolk Psychiatric Center.
Source: Resources Department, NMC Portsmouth, Virginia

APPENDIX I

POTENTIAL OBDS SAVED WITH CASE MANAGEMENT

Outpatients Awaiting PEBS Not Managed by CPC FY 1994

In FY 1994, 163 psychiatric outpatients at NMCP were processed out of the military via PEBS (Mitchell 1995). One hundred fifteen of these were not managed by the CPC program.

Specific readmission data was not available for this group. However, given the overall readmission rate of 9.6% , 11 of these patients would be expected to be readmitted. The projected number of OBDs would be 143 based on the ALOS of 13 days for FY 1994 readmissions.

Seventy-three percent or 105 of these OBDs could have been saved with case management if the Medical Boards process was completed in less than 60 days. The potential average savings for these OBDs was \$41,818 with an range of \$26,985-\$58,569.

Taken in conjunction with CPC potential savings (Appendix H), the total potential average cost savings would have been \$111,627 with a range of \$73,759-\$152,063 (fig 1).

Conclusions

If CPC services were expanded to cover all outpatients awaiting PEBS in conjunction with completion of the Medical Boards process within 60 days, the potential for cost savings exists.

Sources of information in Appendix I: Mitchell 1995; Appendix F; Appendix H

NMC PORTSMOUTH, VIRGINIA PSYCHIATRIC DEPARTMENT

Potential Benefit For Readmission OBDs Saved If Med Board Process Cut To < 60D For All Readmissions

	NMCP \$257/DAY	MARYVIEW \$380/DAY	NORFOLK PSYCH \$505/DAY + \$198/P/T	MED HOLD* NET \$142/DAY-\$92/DAY RECOUPED
FY 1994				
Potential OBD (105)* Cost Savings For Unmanaged Psychiatric Patients Awaiting Outpatient PEBs If They Would Have Been Managed By CPC In Conjunction With Completion Of The Medical Board Process In <60 Days.	\$26,985	\$ 39,900	\$ 53,025 + \$ 5,544	No cost for Medical Holding Company. These patients would be processed out of the system and not require Medical Holding space.
Potential Savings From CPC Program Patients (From Appendix H)	+ \$46,774	+ \$ 69,160	+ \$ 93,494	
Potential Cost Savings Benefit	\$73,759	\$109,060	\$152,063	
Average Potential Cost Savings Benefit	\$111,627			
*Formula: $163 - 48 \times .096 \times .73 \times 13 = 105$				
1. Total Psychiatric Outpatient PEBs.	= 163			
2. CPC Patients Awaiting Outpatient PEBs.	- 48			
3. Readmission Rate For FY 1994.	x 9.6%			
4. Expected Percentage readmissions > 60D with CPC.	x 73%			
5. ALOS for all readmissions for FY 1994.	x 13			
6. Total potential OBDs saved.	= 105			

Costing based on daily rates at NMCP, Maryview Med. Cen., and Norfolk Psychiatric Center.
*\$50

Source: Resources Department, NMC Portsmouth, Virginia

APPENDIX J

COST BENEFIT ANALYSIS OF CPC PROGRAM

Staffing Cost of CPC Program

Since the start of the CPC program, the Psychiatric Department has incurred no additional staffing costs for case management. The CPC program is staffed by one military Commander (O-5) registered nurse (RN) with a Master's Degree in Psychiatric Nursing who is the program's director, two military Petty Officer (E-4) psychiatric technicians/case managers, and two military (E-4) psychiatric technicians assigned to Psychiatric Medical Holding Company. The CPC staff comes out of the existing Psychiatric Department billet structure. Positions are not designated billets targeted for case management.

If CPC billets were created, the full time equivalent (FTE) O-5 RN position ($\$49.02/\text{hr} \times 2,016 \text{ hrs/yr}$) would cost $\$98,824/\text{yr}$. Each case manager and psychiatric technician FTE E-4 position ($\$14.09 \times 2,016 \text{ hrs/yr}$) would cost out at $\$28,405$ annually (Reesey 1995). Cost of the RN manager and two case managers is $\$156,038/\text{yr}$. Cost for Medical Hold psychiatric technicians is $\$56,811$. Total staff costs of an independent CPC program would be $\$212,446$ annually (fig 1) (Reesey 1995).

Cost Benefit FY 1994

Cost benefit is based on the assumption that the OBDs saved by the CPC program represents a mix of patients that would have been treated at NMCP, Maryview Medical Center, and Norfolk

Psychiatric Center. Final figures represent an average OBD rate between the three institutions. The range represents the cost savings if all OBDs saved were at the NMCP rate of \$257/day on the low end and the Norfolk Psychiatric Center rate of \$505/day, plus \$198/patient on the high end (Weiss 1995; Bronson 1995).

The actual average cost benefit of OBDs saved by CPC is \$177,298 with a range of \$109,296-\$248,358. Since the CPC staff are not funded billets, NMCP realizes a cost benefit of \$212,446/year. In FY 1994, this savings was \$156,335 since the CPC program was in effect for only three quarters.

Potential Cost Benefit

Additional savings for FY 1994 might have been realized if the Medical Boards process for all PEBs could have been completed within 60 days in conjunction with case management. On average an additional savings would have been \$111,627 with a range of \$73,759-\$152,063 (fig 1).

Actual and potential savings on average would have been \$448,260 with a range of \$342,390-\$559,756 (fig 1). Since the CPC program was only in effect for three quarters of FY 94, costs for staff are adjusted by 0.25.

Conclusions

The CPC program is cost effective and efficient. This has

been demonstrated by the dramatic decreases in the readmission rates of its target population and the actual cost savings to the Command. Potential savings figures indicate funding billets for the CPC program along with expansion of case management services in conjunction with completion of the Medical Boards process within 60 days might save NMCP additional money.

Sources for information found in Appendix J: Weiss 1995; Bronson 1995; Appendix H; Appendix I

NMC PORTSMOUTH, VIRGINIA CONTINUITY OF PSYCHIATRIC CARE PROGRAM

COST BENEFIT ANALYSIS

	CONTINUITY OF PSYCHIATRIC CARE PROGRAM STAFFING COSTS	NMCP	MARYVIEW MEDICAL CENTER	NORFOLK PSYCHIATRIC CENTER	AVERAGE
One Registered Nurse	\$ 88,824				
Two Case Managers	\$ 56,811				
Two Psychiatric Medical Hold Psychiatric Technicians	\$ 56,811				
	\$ 212,446				
Discounted .25*	\$ 159,335				
Cost Benefit Of Readmission OBDs Saved By CPC		\$ 109,286	\$ 174,240	\$ 246,358	\$ 177,298
Potential Savings With CPC And Med Boards < 60D		\$ 73,759	\$ 109,060	\$ 152,063	\$ 111,627
CPC Staff Cost Without Funded Billets		\$ 159,335	\$ 159,335	\$ 159,335	\$ 159,335
Potential Cost Benefit		\$ 342,390	\$ 442,635	\$ 559,756	\$ 448,260

114

Source: Resources and Patient Administration Departments NMC Portsmouth, Virginia
 *Staff costs discounted .25 since CPC in operation only three quarters of FY 1994

BIBLIOGRAPHY

ANNOTATED BIBLIOGRAPHY

American Hospital Association. 1993. American Hospital Association Hospital Statistics. Chicago: AHA.

Applebaum, Robert and Carol Austin. 1990. Long-term Care Case Management Design and Evaluation. New York: Springer Publishing Co.

Bachrach, Leona L. 1992. Continuity of Care and Approaches to Case Management for Long-term Mentally Ill Patient. Hospital and Community Psychiatry. 44 (May): 465-468.

Birmingham, Jackie. 1994. Discharge Planning for Case Managers: The Process of Continuity of Care. Los Angeles: Academy Medical Systems Inc.

Bower, Kathleen A. 1991. Case Management by Nurses. Washington, DC: American Nurses Publishing.

Bronson, Josh. 1995. Interview of NMCP staff health benefits advisor by David R. Whiting, 09 February. Interview on supplemental care dollars spent on active duty psychiatric patients due to bed non-availability at Naval Medical Center, Portsmouth, Va.

Bureau of Medicine and Surgery (BUMED). 1993. Manual of The Medical Department. Washington, DC: Department of the Navy.

Carey, Benjamin A. 1995. Interview of Psychiatric Department Head. Interview on CPC program, psychiatric Medical Board process, and trends in psychiatric care at Naval Medical Center, Portsmouth, VA.

Cesta, Toni G. The Link Between Continuous Quality Improvement and Case Management. Journal of Nursing Administration. 23 (Jun): 55-61.

Chamberlain, Ronna and Charles A. Rapp. 1991. A Decade of Case Management: A Methodological Review of Outcome Research. Community Mental Health Journal. 27 (Jun): 171-188.

Clark, Robin E. and Thomas S. Fox. 1993. A Framework for Evaluating the Economic Impact of Case Management. Hospital and Community Psychiatry. 44 (May): 469-473.

Cohen, Elaine I. 1991. Nursing Case Management: Does it Pay? Journal of Nursing Administration. 21 (Apr): 209-25.

Coile, Russell. 1994. The New Governance: Strategies for an Era of Health Reform. Ann Arbor: Health Administration

Press.

Cunningham, Beverly. 1994. Outcomes Analysis with Case Management. Nashville: Business Network.

Dietzen, Laura L. and Gary R. Bond. 1993. Relationship Between Case Manager Contact and Outcome for Frequently Hospitalized Psychiatric Clients. Hospital and Community Psychiatry. 44 (Sep): 839-843.

Dunn, Sharon. 1995. Interview of Budget Analyst in the Budget Department by David R. Whiting, 19 May. Interview on Psychiatric Department Fund Usage for FYs 1992-1994.

Eckholm, Erik, 1993. Solving America's Health Care Crisis. New York: Random House.

Ehreth, Jenifer. 1993. Hospital Survival in a Competitive Environment: The Competitive Constituency Model. Hospital and Health Services Administration. 38 (Spring): 23-44.

Hoffman, Paul M. 1994. Establishing an Effective Preadmission Certification Program in a Naval Medical Center. Graduate Management Project. San Antonio: U. S. Army Baylor University.

Kemp, Doug. 1995. Interview of NMCP Staff Psychologist, Outpatient Division by David R. Whiting, 19 March. Interview on Psychiatric Medical Board Process internal audit, Naval Medical Center, Portsmouth, Va.

Konstvedt, Peter R. 1993. The Managed Health Care Handbook. Gaithersburg: Aspen.

Lanier, Jack O. and Charles Boone. 1993. Restructuring Military Health Care: The Winds of Change Blow Stronger. Hospitals and Health Services Administration. 38 (Spring): 121-132.

Laws, Kay. 1995. Telephone interview of the supervisor of Data Flow Department NMCP by David R. Whiting, 21 March. Interview on psychiatric average inpatient length of stay and number of psychiatric admissions for FYs 1992 - 1994 at NMCP.

Loether, Herman J. and Donald G. McTavish. 1993. Descriptive and Inferential Statistics. Boston: Allyn and Bacon.

Mayer, Gloria Gilbert, Mary Jane Madden, and Eunice Lawrenz. 1990. Patient Care Delivery Models. Rockville: Aspen Publications.

Mitchell, Carol Y. 1995. Interview of Supervisor of

Medical Boards/Temporary Retired List by David R. Whiting, 19 March. Interview on Medical Board Process, Naval Medical Center, Portsmouth, Va.

Naval Medical Center, Portsmouth, Virginia (NMCP). 1994. Organizational Manual NAVMEDCENPTSVAINST 5450.D. Portsmouth: NMCP.

Peterson, Joyce. 1991. The Role of the Nurse Manager in a Case Management Delivery System. Pediatric Nursing. 17 (May/Jun): 282.

Pratt, David H. 1992. Utilization Review in the Military Health Care Delivery System. Military Medicine. 157 (Sep): 476-479.

Quinn, Joan. 1993. Successful Case Management in Long-term Care. New York: Springer Publishing.

Reese, Meg. 1995. Interview of management analyst in the Progress Reports and Statistics division of NMCP Resources Department. Interview on FTE rates for CPC personnel at Naval Medical Center Portsmouth, VA.

Rivera, Shelagh. 1994, 1995. Multiple interviews of Continuity of Psychiatric Care program coordinator by David R. Whiting, 26 October, 2 December, 12 January '95, 15 February, 15 March, 31 March. Interview on psychiatric case management, Naval Medical Center, Portsmouth, VA.

Robinson, Janice A., Kathryn J. Robinson, and Donna J. Lewis. 1992. Balancing Quality of Care and Cost-effectiveness Through Case Management. ANNA Journal. 19 (Apr): 182-188.

Rossler, A., W. Löffler, B. Fatkenheuer, and A. Riecher-Rossler. 1992. Does Case Management Reduce the Rehospitalization Rate? Acta Psychiatrica Scand. 86 (Dec): 445-449.

Rubin, Allen. 1992. Is Case Management Effective for People with Serious Mental Illness? Health and Social Work. 17 (May): 138-150.

Sandhu, Balbir K., Andre Duquette, Suzanne Kerouac, and Lesley Rouiller. 1992. Case Management: The Nursing Business of Care or Cost. Nursing Quebec. 12 (Sep/Oct): 39-44.

Schlackman, Neil. 1991. The Quality Care Cycle. Quality Review Bulletin. (Nov): 360-364.

Sims, Gloria J. 1995. Interview of the Administrative Assistant, Department of Psychiatry, NMCP by David R. Whiting, 16

March. Interview on the internal Psychiatric Medical Board process for the Department of Psychiatry at NMCP.

Southby, Richard F. 1993. Military Health Care in the 21st Century. Military Medicine. 158 (Oct): 637-640.

Sowell, Richard L., and Timothy M. Meadows. 1994. An Integrated Case Management Model: Developing Standards, Evaluation, and Outcome Criteria. Nursing Administration Quarterly. 18 (Winter): 53-64.

Sypher, B. D. 1990. Case Studies in Organizational Communication. New York: Guilford Press

Turkus, Joan A. 1991. Psychotherapy and Case Management for Multiple Personality Disorder. Psychiatric Clinics of North America. 14 (Sep): 649-661.

U. S. Congress. 1991. Title 10 Armed Forces. United States Code Annotated. St. Paul: West Publishing.

Warrick, Louise H., Jon B. Christianson, Frank G. Williams, and F. Ellen Netting. 1990. The Design and Implementation of Hospital-based Coordinated Care Programs. Hospital and Health Services Administration. 35 (Winter): 507-524.

Weiss, Evelyn. 1995. Interview of Resources Department statistical data analyst by David R. Whiting, 14 April. Interview on psychiatric census data related to admissions, readmissions, average lengths of stay, and occupied bed days at Naval Medical Center, Portsmouth, Va.

Yin, Robert K. 1994. Case Study Research: Design and Methods. Newbury Park: Sage Publications.